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THE

GARDENERS' CHRONICLE

A Weekly Illustrated Journal

OF

HORTICULTURE AND ALLIED SUBJECTS.

(ESTABLISHED IN 1841.)

VOL. XXVII.—THIRD SERIES.

JANUARY TO JUNE, 1900.

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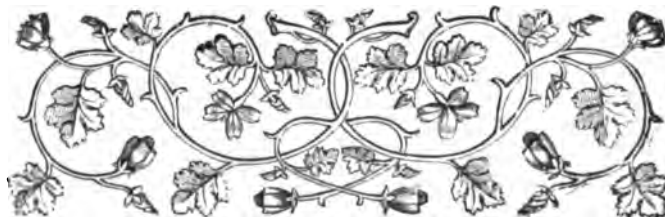
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THE Gardeners' Chronicle

No. 680.—SATURDAY, JAN. 6, 1900.

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GARDENING UNDER GLASS.*

By W. WATSON, ROYAL GARDENS, KEW.

LAST year we devoted an evening to "The Evolution of the Greenhouse." We found that the first use of glass in the construction of a house for plants was towards the end of the seventeenth century, when structures known as orangeries, with opaque roofs and glass sides, were designed. Such, according to Ray, was the house in the Apothecaries' garden at Chelsea in 1684, and which was heated by a kind of oven. In 1717 a forcing-house for Grapes was erected for the Duke of Rutland at Belvoir Castle, in which glass formed the roof as well as the sides. These structures were heated by means of furnaces built under the floor of the house. This was improved upon by carrying the flue or chimney along the side of the house. Steam was used in 1788, and shortly afterwards hot water was applied to the artificial heating of a plant-house in the Jardin des Plantes, Paris. None of these structures, however, were what we to-day should designate a greenhouse; they were merely sheds with a few extra windows in the sides or roof for the admission of light, their chief use being to protect from the cold of winter such plants as during the summer could be grown in the open air. The earliest form of plant-house constructed wholly of glass supported by sash-bars, was the lean-to, of pent-house shape, some of which are still in existence in old gardens in this country.

From such structures to those of modern design was a great stride. Then glass was expensive and poor; heating arrangements were of a more or less make-shift character,

and the methods of ventilation were of a primitive kind. And yet the gardeners of those days succeeded in growing exceedingly well many plants which, notwithstanding our greatly improved appliances, we either fail with or grow indifferently. This, I think, is to be attributed to a change in the spirit of horticulture, rather than to a falling off in cultural skill. Generally, the improvement in gardening under glass has kept stride with the improvement in appliances, and the skilful cultivator can now produce in a year plants which are not only finer examples as regards finish, but grown in one-half or one-third of the time it took our grandfathers to grow them.

Let us now turn to the principles which govern the cultivation of plants in glasshouses to-day, omitting details which are outside the scope of this paper.

THE STRUCTURE.

Whilst few would deny that the most perfect plant-house is that which admits the maximum amount of light at all times of the year, it is surprising how many overlook that essential when designing plant-houses. We are in this matter too much under the influence of the builder and architect, whose aim and taste are not usually those of the gardener, and who cannot always be made to comprehend the importance of direct sunlight for the growth of plants. The gardener should insist on having houses as nearly as possible wholly of glass. The most perfect house would be a compressed glass bubble, and every inch of opaque material introduced is consequently so much short of perfection. The builder will insert heavy beams, massive iron-work, and useless ornamentation, both outside and inside; and he will assert that they are essential to the safety or finish of the structure. It therefore behoves a gardener to know sufficient of the principles of construction to be able to prevent this overloading of plant-houses with obstructions to light. A house should be designed to satisfy the requirements of the plants at the worst time of the year. We can easily shut out excess of sunlight, but we are powerless to increase it, except by the use of the electric light.

The defects due to the fads and whims of the architect when called upon to design a conservatory were pointed out by Loudon forty years ago in that rich mine of horticultural lore, the *Encyclopedia of Gardening*. He says: "The grand cause of the improvements which have been made in hot-houses may be traced to their being no longer, as formerly, under the control of mansion architects. To civil architecture, as far as respects mechanical and chemical principles, or the laws of the strength and durability of materials, they are certainly subject in common with every description of edifice; but in respect to the principles of design or beauty, the foundation of which we consider to be "fitness for the end in view," they are no more subject to the rules of architecture than is a ship or a fortress; those forms and compositions, fitting and beautiful for the habitation of man or animals, being unfitting, and therefore not beautiful in a habitation for plants. Such, however, is the force of habit and professional bias, that it is not easy to convince architects of this truth. Fitness for the end in view, we repeat, is the basis of all beauty in works of use, and therefore the taste of architects so applied may safely be pronounced as radically wrong."

This principle insisted upon in the passage quoted, viz., "fitness for the end in view," is

of fundamental importance in the construction of plant-houses. If conservatories are built mainly to add to the architectural finish of residences, first-class gardening must be set down as of only secondary importance. These often dark, dismal structures are generally unsightly inside from every point of view; and whilst some gardeners succeed in making them passably picturesque by the use of a few plants which are good-natured enough to grow anywhere, others give them up as hopeless. I would never build such a house as No. 1, or the central part of the Winter Garden at Kew; for, although the plants they contain live, and more or less grow, the same plants would thrive twenty times better in houses better adapted for gardening. Very large houses have what we may term an imposing effect; but, speaking after an experience of twenty years in trying to grow plants in them, I may say they are heartbreaking to the gardener who desires to see his plants healthy and happy. The number of plants sacrificed in trying to keep large structures furnished and interesting is far greater than most people believe.

This brings me to the second fundamental principle of greenhouse construction, viz., height. Do not build a foot higher than the plants require. It is unnecessary to insist here on the importance of keeping plants in houses as near the roof-glass as possible, as every gardener knows that healthy, vigorous growth is in inverse ratio as the distance of the plant from the glass. Market growers, keenly alive to this, build their houses low. The height of the ridge is decided by the width of the house: the angle of the roof, from 30 to 45 degrees, calculated to admit the maximum of sunlight and heat, and to throw off water, snow, &c., is now generally known, and acted upon by builders.

The quality of glass used for plant-houses should be strong, and good; 21 oz. crown glass is used at Kew. Poor glass not only breaks easily, but it often burns or scalds the plants by focussing through defects the heat-rays of the sun. The sash-bars should be no wider than stability requires. Except in very special cases, all houses should be built at right angles to the south; houses running from south to north, as so many are at Kew, are a mistake.

VENTILATION.

The ventilator has two distinct uses in the plant-house—first, to supply fresh air to the plants; second, to regulate the temperature. Many plant-houses are so loosely put together that a healthy circulation of air takes place when they are closed. A well-built house, properly glazed, is, on the contrary, as close as a corked bottle. A regular supply of fresh air is as necessary to the health of plants as a regular supply of fresh water. There are various efficient methods for ensuring this at all seasons of the year, but unfortunately they are too often neglected. Modern cultivators avoid opening the top ventilators except when the conditions render it safe. When the difference in temperature between the air outside and that inside is extreme, to open the top ventilators would be unwise, the outrush of the warm air, and the inrush of cold air, being most hurtful. In the case of plants which easily flag, the ill-effects are soon evident, and mischief is prevented by closing the ventilators; but where the plants are more rigid, the injury is not so immediately evident, although it occurs just the same. Never open top ventilators, therefore, except when the air outside is such

* From a Paper read at the Kew Mutual Improvement Society.

as will not injure the plants when admitted in quantity.

"The drain of moisture by the escape of heated air is much greater than is generally imagined. The capacity of air for moisture depends upon its temperature, and increases with it in a rapid ratio. It is doubled between 44° and 66°. The consequence is, that every cubic foot of air which escapes at the latter temperature carries off with it twice as much moisture as it brought in. When the difference of temperature is greater, the drain becomes greater also; air entering at 44° and escaping at 80° carries off three times as much moisture as it brought" (Rogers).

The best form of roof-ventilator is the lantern or short hinged top-sash. Sliding-sashes are antiquated, and have many defects. Bottom-ventilation should be afforded in moderation at all times, and the air should be admitted in such a way as will ensure its being warmed before it reaches the plants. Experienced Orchid-growers leave the bottom ventilators of cool-houses wide open all night during summer, and in moist weather.

It is in the manipulation of the ventilators, blinds, and heating-apparatus, that the careful gardener often obtains his most marked successes. All the appliances may be of the most approved kinds; but if carelessness in these essential factors of healthy plant-growth is practised, failure must inevitably result. Generally a plant-house should be ventilated on precisely the same lines as a man's house, avoiding rushes of air, sudden changes and draughts, at the same time admitting sufficient to maintain buoyancy and freshness.

SHADING.

There is, generally speaking, a great deal more shading done than the plants require or like. Too often this is due to laziness. Under the influence of sunshine, plants lose their moisture quicker, and consequently they require watering more frequently than when shaded. The blinds are let down in the morning when the sun is powerful, and are allowed to remain down till evening, even although the sun may have been obscured for hours during the day. Plants will grow rapidly even in feeble light, but they are imperfectly nourished, and will break down eventually, either by dropping their flower-buds, losing their leaves, or a portion of the latter may become brown or spotted. Light is life to the plants, and although it may injure some by its intensity, as a rule the brighter it is the better the growth will be. With bright sunshine, the temperature of the house may be allowed to rise correspondingly; more light, more heat, is a safe axiom in indoor gardening.

(To be continued.)

ORCHID NOTES AND GLEANINGS.

DICTIONNAIRE ICONOGRAPHIQUE DES ORCHIDÉES.

THE November number commences a new series. Henceforth the publication will only be published at intervals of two months. The collection of plates is so handy for reference, the execution of the plates so free from exaggeration, and the text so authentic, that we earnestly hope for a prosperous future for this useful publication. The plants figured in the last number are:—*Anguloa Clowesii*, Ldl.; *Cattleya Rex*, O'Brien; *C. Atlanta inversa*, Hort.; *Cochlidium rosea*, Benth.; *Dendrobium Vitoria Reginae*, Lohr.; *Epidendrum atropurpureum* v. *longilabre*, Cogn.; *E. xanthinum*,

Ldl.; *Grammatophyllum Rumphianum*, Miq.; *Lælia xanthina*, Ldl.; *Maxillaria striata*, Rolfe; *Mormodes Ocanne*, Lind. et Rehb. f.; *M. Buccinator*, Ldl. (forma); *M. B. v. citrinum*, Hort.

EULOPHIA LUBBERSIANA.

Under this name the *Revue de l'Horticulture Belge et Etrangère* for the present month gives the description of a new species from the Congo. The leaves are described as very beautiful, pearly-white, spotted with black and with green blotches. The flowers are less remarkable. A coloured illustration will be given in the next issue.

ADVENTITIOUS GROWTH ON CYPRIPIEDUM.

Mr. G. W. Cummins, Balmedie Gardens, Aberdeen, kindly forwards a flower-stem with seed-capsule of *Cypripedium Lathamianum*, bearing at the base of the ovary a tiny plant which might easily be mistaken for a seedling. Examination with a powerful lens, however, shows that the growth has actual contact with the flower-stem of the parent-plant, and that it is an adventitious process therefrom of precisely the same nature as similar growths often found on the flower-spikes, and sometimes on the roots, of *Phalenopsis* and other Orchids. In *Cypripediums* we have noticed similar growths on several occasions, and in most cases when the ovary had perished before maturity, or when the flower-stem was dying from the base.

CABBAGES.

MOST gardeners will admit that Coleworts have no equal as regards goodness of quality and mild flavour among Cabbages, and the best of them is undoubtedly the Rosette variety. These Coleworts are in use in the winter, and onwards till late in the spring months. The ordinary Cabbages, if planted in the month of October make slow progress until the end of the month of February, and then growth becomes more rapid; but that of the Coleworts is completed in mild winters in three months from the time of planting. It frequently happens that rapid growth in vegetables does not tend to capability to withstand frost, and Coleworts are sometimes greatly injured in this way, the heads expanding, and making the plant more vulnerable to wet and frost. Seeing how well such winter Cabbages as the St. John's Day, Christmas Drumhead, and Sutton's Favourite stand severe weather, it occurred to me that a good type of the Rosette Colewort, if crossed with one of these varieties, would afford a hardier Cabbage of good quality. One of this race was figured and described in the *Gardeners' Chronicle* on Dec. 16, under the name St. Martin, a variety which I think will make its way in gardens. Some gardeners complain that it lacks size, good eating quality being too often thought of little moment. I have named Sutton's Favourite as a distinct winter variety, although it is generally less grown at that season than in spring to come on in summer; still, it is a fine autumn and winter variety, very dwarf, with a solid small heart, remaining good when fully grown for a longer period of time than many others. This remark applies to Cabbages raised from summer or early autumn sowings, for mid-winter supplies. In regard to hardiness, I know of no other variety that is the superior of Christmas Drumhead, which is a hard compact Cabbage, but little influenced by the weather. It may be thought that what are termed spring or early summer Cabbages, if sown at the right season, would do for use in the autumn, but such is not the case as regards these varieties, as quite a different kind of growth takes place at that season that renders them less useful than at their proper season. For many years before I obtained the true Christmas Drumhead from seed, from Mr. Bunyard of Maidstone, I grew Winnigstadt, an old continental variety, possessing a short stem and large conical head, and leaves of a glaucous hue, like those of the Broccoli or Cauliflower. It is a very hardy Cabbage. The type, when first sent

out, was a dwarfier plant than those now in commerce, and the head was smaller. I mention the Winnigstadt for its hardiness, and its value as an autumn and winter Cabbage, the seed being sown in the month of May. I have sown winter varieties of Cabbage in March for summer use, and they seemed to be less subject to attacks from caterpillars than the spring varieties, and bolting; all the same, their flavour is not to be compared to plants grown under better conditions. I need not say anything here about the cultivation of Cabbages beyond advising gardeners to plant them rather closely, say 15 to 18 inches between the rows, and to make two sowings, one early in the month of May for the autumn supply, another a month to six weeks later for winter use. G. Wythes.

RENANTHERA LOWI.

IN fig. 1 is illustrated a remarkable specimen of this Orchid as it bloomed in October in Mrs. Nelson's Garden at Salisbury Green, Edinburgh. To Mr. Alex. Laing, who has charge of these gardens, we are indebted for the photograph, and for the following information concerning this plant, in the cultivation of which he has been so successful:—

"The plant is 3 feet high, has twenty-seven leaves, and bore four flower-spikes, supporting 116 blooms. The longest spike was 6 feet 6 inches in length. A remarkable characteristic of this species, well known to Orchidists, is its production of dimorphous flowers. On two of the spikes there were the usual two blossoms at the base of the spike, different in shape and colour from all the others on the same spike, while at the base of the other two spikes there were one and three respectively of the yellow and crimson spotted flowers. The plant has been grown in a house having a temperature of 60° to 65° in winter, and 65° to 70° in summer. Being a native of Borneo, the plant would doubtless thrive, and perhaps flower more freely if grown in a higher temperature with the necessary moisture."

NOVELTIES OF 1899.

AGAIN the season has come round for a review of the new plants raised or introduced to our gardens during the year just closed, especially of those plants Certificated during 1899 by the Royal Horticultural Society. As usual, in addition to plants actually new, there are others that have been little known, or that have only now shown their true characteristics.

Although few new departures or fresh sections of exceptional interest have appeared during the year, either among importations or home-raised hybrids, there is abundant evidence that great progress has been made, more especially by the hybridist, whose work was so interestingly set forth at the Hybridisation Conference of the Royal Horticultural Society in July, and in the notes accompanying the portraits of the leading hybridists published in the *Gardeners' Chronicle*.

It is interesting to disclose by this annual review that the specialists of old are true to their selections, the same names appearing in conjunction with the same classes of plants year after year.

ORCHIDS

especially show the constancy of those who cultivate them. Sir TREVOR LAWRENCE, Bart., Burford (gr., Mr. W. H. White), still takes the lead among the lovers of good things of all classes, and is foremost among the few who treasure pretty botanical species. During the year some few good advances have appeared among the Burford hybrid Calanthes, *Dendrobiums*, and other genera; the certificated plants from Burford, including *Cypripedium* × *Argo-Morganii* and *C. × Hera Euryades*, the latter being specially fine; *Dendrobium* × *Wiganæ xanthochilum*, a bright yellow flower, with rich purple centre; *D. × Euterpe*, a stately hybrid, with very showy flowers; *D. × Nestor*, originally raised by Chas. Winn, Esq.; *Thunia Bensoniæ superba*, a large rose-purple flower; *Masdevallia*

× *Curlei*, M. × *Shuttyanana*, Chamberlain's variety (different in colour to the one raised at Burford), and M. × *falcata*.

Among fine varieties of species credited to Sir Trevor Lawrence during the year are the Burford form of *Masdevallia ignea* Boddarta; *Cattleya Mossii* Lawrence, and C. M. *Goossensiana*, two

anum, The Dell variety; O. × *Cookeanum* and O. × *Coradinei* mirabile, all well worthy of his fine collection.

Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young), a great admirer of good Orchids, contributes to the novelties of the past year the fine white *Cattleya Mendeli*

The Rt. Hon. JOSEPH CHAMBERLAIN (gr., Mr. J. Smith), has on several occasions sent fine examples of the hybrid Orchids raised at Highbury to the meetings of the Royal Horticultural Society. The best during the year were the bright reddish-scarlet *Sophro-Cattleya* × *Chamberlaini* var. *triumphans*, and the charming hybrid of *Cattleya maxima*—C. × *Mrs. Endicott*?

JOHN LEEMANN, Esq., of Heaton Mersey (gr., Mr. Edge), one of our most enthusiastic collectors, showed us *Odontoglossum crispum* Mrs. John Leemann, O. × *Coradinei*, West Bank House variety; the noble *Cattleya labiata* Sir George White, the brilliantly coloured C. l. *Peetersiana* superba, the delicately-tinted *Cattleya* × *Isabella*, *Cypripedium* × *Helvetia*, and a number of other new hybrids which have been flowered by him for the first time in 1899.

ELIJAH ASHWORTH, Esq., of Wilmalaw (gr., Mr. Edge), has *Cattleya Trianaei* Ernest Ashworth, *Cypripedium insigne*, Harefield Hall variety; *Odontoglossum crispum* Ashworthianum, O. × *Adrianae* Ashworthianum, and other good things.

NORMAN C. COOKSON, Esq., Oakwood, Wylam (gr., Mr. Wm. Murray), has recorded as his best of the year the remarkable dark ruby-red *Calanthe* × *Oakwood Ruby*, a triumph of cross-breeding and selection; the fine *Phaius* × *Phoebe*, *Dendrobium* × *Cybele*, *Oakwood* variety; and *Cypripedium* × *Schofieldianum* superbum.

Of *Odontoglossum* specialists, W. THOMPSON, Esq., Walton Grange, Stone (gr., Mr. W. Stevens), succeeded in getting Certificates for *Odontoglossum crispum* Duke of York, O. c. *Daphne*, O. c. *Arthur Briaco*, O. × *Coradinei* expansum, O. × *Loochristyense* Canary Bird, and O. *triumphans* King Alfred.

DE B. CRAWSHAY, Esq., Sevenoaks (gr., Mr. S. Cooke), follows in the same direction with *Odontoglossum crispum* Seraphim, O. c. *Raymond Crawshay*, O. × *Andersonianum* Mrs. De B. Crawshay, O. × *A. Raymond Crawshay*, O. × *Coradinei* *Crawshayanum*, O. × *Ruckerianum* *Crawshayanum*, *Lælia anceps* *Rosefieldensis*, and L. a. *Amesiana*, *Crawshay's* var., whose merits obtained acknowledgment during the year.

H. S. LEON, Esq., Bletchley Park (gr., Mr. Hialop), scores with his *Cattleya* × *Maggie Raphael*, the finest yellow-petalled hybrid of the year; *Lælio-Cattleya* × *callistoglossa*, Leon's variety; L. C. × *Preciosa* Hialopi, and some others.

G. W. LAW-SCHOFIELD, Esq., New-Hall-Hey (gr., Mr. Shill), produced the fine *Cypripedium* × *Shillianum*, which would have taken the Medal for the best hybrid Orchid of the year, but that it had been put out by having been previously exhibited; C. × *conco-callosum*, *Lælia purpurata* Annie Louise, &c.

A. WARBURTON, Esq., Haslingden, was given recognition for *Lælia tenebrosa* Victor Warburton, a fine form of the L. t. *Walton Grange* class; and *Dendrobium* × *Clio Vine House* var.

WALTER COBB, Esq., Tunbridge Wells (gr., Mr. J. Howe), showed the fine *Odontoglossum crispum* *Basano*, *Miltonia vexillaria dulcotensis*, *Odontoglossum triumphans*, *Dulcote* var., and *Cypripedium bellatulum*, *Dulcote* var.

J. GURNEY-FOWLER, Esq., Glebelands, South Woodford (gr., Mr. J. Davis), showed *Cypripedium* × *Miss Louisa Fowler*, *Cattleya Eldorado*, *Glebelands* variety; C. *Mossii* *Victoria*, and *Cypripedium insigne* *Fowlerianum*, all good.

Other fine plants shown by amateurs in 1899, and Certificated, were *Cattleya Dowiana*, Little's variety, of H. LITTLE, Esq.; *Cattleya Harrisoniana* alba, and *Lælio-Cattleya* × *Adolphus*, of the Rev. Mr. PAYNTER, Guildford; *Cattleya labiata* *Gilmouriae*, and the beautiful *Lælio-Cattleya* × *Dominiana* *Fire King*, of Mrs. BRIGGS-BURY; *Cattleya intermedia*, *Rosslyn* variety, and *Odontoglossum crispum*, *Rosslyn* variety, of H. T. PITT, Esq.; *Cattleya labiata*, and the fine white C. *labiata* Mrs. R. I. MEASURES, of R. I. MEASURES, Esq. (gr., Mr. H. J. Chapman); the pure white *Cattleya Ludemanniae* alba, of W. DUCKWORTH, Esq.; Mr.



FIG. 1.—A FINELY-FLOWERED SPECIMEN OF *RENANTHERA LOWII*, IN THE GARDEN OF MRS. NELSON, SALISBURY GREEN, EDINBURGH.

NUMBER OF FLOWERS UPON THE PLANT 116. (SEE P. 2.)

very distinct and desirable additions to the showy forms of C. *labiata*; C. *Mendeli* *Burford* variety; *Odontoglossum crispum* *purpurascens*, a well-marked fine variation; and the bright yellow *Sophranitis grandiflora* *Rossiteriana*.

BARON SIR H. SCHRODER, The Dell, Staines (gr., Mr. H. Ballantine), showed his continued appreciation of the genus *Odontoglossum*, so well grown and so richly represented at The Dell, with O. *luteo-purpureum*, The Dell variety; O. *Wilcke-*

albesens, the handsome C. *Trianaei* Amy Wigan, the richly-coloured *Lælio-Cattleya* × *Wiganæ*, a splendid hybrid of the L. C. *Dominiana* class; L. C. × *superbo-elegans*; *Lælia tenebrosa gigantea*; the rare natural hybrid *Cattleya* × *Whitei*, Wigan's variety; *Cypripedium Stonei* candidum, *Phalænopsis Sanderiana*, Wigan's variety, the most perfect in form of any of the rose-pink *Phalænopsis*; *Odontoglossum* × *Adrianæ* Lady Wigan, and O. × *Harryanum* *crispum*

T. W. THORNTON'S fine hybrid *Cattleya* × *weedenensis*, and *C.* × *Euphrasia*, Thornton's variety; Lord ROTHSCHILD'S *Schomburgkia* *Lyonsii*, and *Stauropsis* *lioschiloides* var., neither new as species, but rarely seen in such good form; and *Vanda* *terres*, Gunnersbury Park variety, of LEOPOLD DE ROTHSCHILD, Esq.

The *Masdevallia* × *Rushtoni* of CAPTAIN HINCKES is worthy of that *Masdevallia* hybridist; *Cattleya* *Mossiae* *gloriosa*, and *Laelio-Cattleya* × *Aphrodite* *Ruth*, of J. RUTHERFORD, Esq., surpass former varieties in each class; and *Odontoglossum* *crispum* *Purity*, of T. B. HAYWOOD, Esq.; *Cattleya* × *Kienastiana* *Aurora*, and *C.* × *elator* of C. L. N. INGRAM, Esq.; and *Cypripedium* × *Milo*, *Westonbirt* variety, and *Odontoglossum* × *Andersonianum*, *Westonbirt* variety, of CAPTAIN HOLFORD, are valuable acquisitions of the year.

NURSEYMEN'S PRODUCTIONS.

Messrs. JAS. VEITCH & SONS, as usual, hold the record for having flowered the greatest number and the best hybrids of the year. The season was opened by them in January with the grand *Angraecum* × *Veitchi*, and the remarkable and interesting *Epi-Cattleya* × *Mrs. James O'Brien*, both of which received Awards on January 10 at the Royal Horticultural Society. On July 25 they exhibited *Sophr-Cattleya* × *Queen Empress*, one of the finest hybrids ever raised, and a distinct reward for Messrs. Veitch's labours to produce a hybrid of the size of the larger *Cattleyas*, but with the dark scarlet colour of some of the forms of *Sophrontis* *grandiflora*. *Sophr-Laelia* × *lata* *superba* is another step in the same direction, and each of the following exhibits show good results of the work done by Messrs. Veitch and their diligent lieutenant, Mr. John Seden. All have received Awards in 1899: *Cattleya* *labiata* *alba* *Prince of Wales*, C. Gaskelliana *formosa*, C. × *Princess*, C. × *vestalis*, *Cypripedium* × *Captain Holford*, C. × *Hera Euryades* *splendens*, C. × *Orion*, *Disa* × *Clio* *superba*, *Epidendrum* × *elegantulum* *luteum*, E. × *Langleyense* *superba*, *Epi-Laelia* × *Charlesworthi*, *Laelia* × *Mrs. Gratrix*, *Laelio-Cattleya* × *Bryan Duches* of *York*, L.-C. × *Aphrodite* *eximia*, L.-C. × *Lucilia*, L.-C. *Wellisiana* *ignescens*, *Phaio-Calanthe* × *Niobe*, *Phalenopsis* × *Cassandra*, P. × *Hermione*, and P. × *Mrs. J. H. Veitch*.

MESSRS. F. SANDER & Co. have rendered great service to horticulture by the introduction of the remarkable *Dendrobium* *spectabile*, figured on p. 491 in last week's issue, and now flowering in several collections; also, the elegant Himalayan *Cymbidium* *Gammieanum*; and by the production of some good hybrid *Cypripediums* and others, among which should be mentioned the pretty *Zygo-Colax* × *Ameisiana*, and *Laelio-Cattleya* *Wilsoniae*, a pretty addition to the medium-sized hybrids.

Messrs. HUGH LOW & Co. secured awards for *Cattleya* *Mendeli* *Perfection*; *C. Mossiae* *Beauty of Bush Hill*, C. *Trianae* *Ameisiana*, and *Odontoglossum* × *Andersonianum* *grandiflorum*, all showy novelties.

Messrs. CHARLESWORTH & Co., in their hybrid of *C.* *Charlesworthi*, named *C.* × *Lord Roberts*, produced one of the richest-coloured *Cypripediums* yet seen; and other trade establishments have supplied important new varieties and hybrids.

CONTINENTAL EXHIBITS

of Orchids have been more than usually numerous and good during the past year.

Messrs. LINDEN, l'Horticole Coloniale, Brussels, having among their best *Cypripedium* × *Wiertzianum*, *Cattleya* *Trianae* *Memoria Lindeni*, *Odontoglossum* *crispum* *Miss Linden*, *Miltonia* *vexillaria* *Lindeniae*, *Oncidium* *varicosum* *Lindenii*, O. *Forbesii* *Moortebeekense*, O. *F. castaneum*, and others.

M. JULES HYE-LEYSSEN, Ghent, secured awards in England for *Cypripedium* × *Surprise*, C. × *Talisman*, *Odontoglossum* *crispum* *Sultan*, O. c. *Etoile du Congo*, O. c. *Franz Masereel*, O. × *excellens* *Hyeaenum*, O. × *e. nobilius*, O. *Halli-Lafresseanum*, *Laelio-Cattleya* × *Myra Etoile d'Or*, and the fine L.-C. × *Madame Albert Hye*

M. CHAS. MARON, Brunoy, France, one of the most successful of continental Orchid hybridists, has a good record with *Laelio-Cattleya* × *Ernesti* *Princess Olga*, the grand, bright yellow hybrid which has now passed into the collection of Norman C. Cookson, Esq.; L.-C. × *Digbyano* - *Mendeli* *Imperatrice de Russe*, L.-C. × *Callistoglossa* *J. Leemann*, L.-C. × *Martineti*, L.-C. × *Duvaliana*, and other good hybrid *Laelio-Cattleyas* shown at the Hybrid Conference in July.

The following novel or rare Orchids were illustrated in the *Gardeners' Chronicle* in 1899: -

- Angraecum* × *Veitchi*, January 21, p. 35.
- Bartholina* *pectinata*, July 1, p. 15.
- Bulbophyllum* *mandibulare*, October 14, p. 293.
- Cattleya* × *Maggie Raphael*, December 30, p. 482.
- Cypripedium* × *Hera Euryades*, December 30, p. 483.
- Cypripedium* × *Milo*, *Westonbirt* var., December 2, p. 413.
- Cypripedium* × *Olivia*, November 4, p. 239.
- Dendrobium* × *Cybele*, *Oakwood* variety, April 29, p. 259.
- Dendrobium* *spectabile*, December 30, p. 491.
- Epi-Cattleya* × *Mrs. James O'Brien*, January 21, p. 37.
- Laelio-Cattleya* × *Ernesti*, *Princess Olga*, March 11, p. 149.
- Odontoglossum* × *Cookeanum*, March 11, p. 155.
- Odontoglossum* × *Coradinei*, *West Bank House* var., May 20, p. 315.
- Odontoglossum* × *Adrianae*, *Lady Wigan*, April 29, p. 258.
- Odontoglossum* *crispum* *Daphne*, October 21, p. 307.
- Odontoglossum* *crispum* *Duke of York*, March 25, p. 179.
- Odontoglossum* *crispum* *Mrs. John Leemann*, March 25, p. 187.
- Odontoglossum* *crispum* *Moortebeekense*, December 9, p. 421.
- Odontoglossum* × *Harryano* - *crispum*, July 22, p. 67.
- Odontoglossum* × *Wilckeanum* *pallens*, March 25, p. 185.
- Phalenopsis* × *Mrs. J. H. Veitch*, February 25, p. 114.
- Phaius* × (*Manni* × *tuberculosis*), February 25, p. 115.
- Schomburgkia* *Lyonsii*, September 9, p. 203.
- Selenipedium* × *macrochilum* *giganteum*, Supplement, June 3.
- Sophr-Cattleya* × *Chamberlainiana* var. *triumphans*, December 16, p. 446.
- Sophr-Cattleya* × *Queen Empress*, August 5, p. 113.
- Zygo-Batemaniana* × *Mastersii*, February 18, p. 99.
- Zygopetalum* *Gairianum*, November 25, p. 401.

(To be continued.)

CULTURAL MEMORANDA.

PERENNIAL GAILLARDIAS.

THE Gaillardias are invaluable for the decoration of the flower-garden or the herbaceous border. They flower abundantly in summer and autumn, and last long upon the plant or when cut and placed in vases. There are few species, but many garden hybrids. *G. aristata* has yielded numerous varieties that have brightly coloured flowers of varied shades, and they are all vigorous growers.

In some localities the Gaillardias are not perfectly hardy, for a winter of usual severity will kill the plants. But this rarely occurs upon light or dry soils. The Gaillardias are peculiarly adapted for grouping, and by this system the characteristics of the plants are best displayed. A method I have adopted with success is to save some seed annually from the best marked flowers. The seed is sown in boxes as soon as ripe, and quickly germinates. The seedlings are pricked off into other boxes containing good friable soil, and kept in cold frames during the winter months. In March or earl

April they are transferred to their permanent position out-of-doors, the soil having been previously prepared by trenching, and the incorporation of manure and wood ashes or charred refuse.

With ordinary care the plants will be strong at planting time, and will grow apace if given water should the weather be dry. A little manure-water may be given alternately with clear water, or the plants may with advantage be mulched with manure, which will also help to conserve the moisture. Plants thus treated will yield a profusion of exquisite flowers during late summer, and well on into the autumn.

Another mode of raising seedlings is to purchase seed in February and to grow them on without a check until the weather is favourable for transplanting them to the open ground, and provided that every care and attention be given the plants excellent results may be expected. The old plants that have withstood the winter will naturally flower much earlier than seedlings, and will thus prolong the season of bloom. Close attention must be given to keeping the plants secured in an upright position from the time they commence to produce flowers. Four stakes placed round each plant with a string passed round at intervals will answer well, and will ensure the long flower-stems keeping straight for use in vases. H. T. Martin, *Stoneleigh*.

MARKET GARDENING.

HYDRANGEAS.—These are grown in large quantities for market, the various growers treating them differently, and it is difficult to say which is the best and most economic method. At one time it was only the dwarf plants in 48-size pots that found much favour, but since floral decorations have been carried out on a much larger scale and in different styles to what they were formerly, taller and larger plants are in demand.

The dwarf plants may be grown by taking cuttings towards the end of August, but these must be taken from strong plants with well matured growths. In favoured districts where they withstand the winter out of doors, the best cuttings are obtained from those planted out in the open. These will root freely on a hot-bed. They should be put in singly in small pots, and may be potted on into 48-size pots as soon as well rooted, after which they should be well exposed and kept rather dry than otherwise. If they are well ripened a slight frost will do no harm, but it is safer to afford protection early.

Another method is to propagate from the young shoots early in the spring. When they are forced, there are generally plenty of good cuttings to be had from side shoots or those which fail to flower. These cuttings must be as short as it is possible to get them, and though they require to be struck in heat, they must be removed therefrom before they start into new growth; they should be potted singly, and given plenty of room. They require the protection of a frame during the earlier stages, but after they are well established they should be stood out in the open, where they get all the sun and air possible. Some of the earliest struck plants may be stopped, and will then make two or three breaks in time to set their buds.

A good loamy compost should be used, and the firmer they are potted the better; they root through quicker in a rich loose compost, but they do not make such short sturdy growth as those potted firmly. Plants with from three to five large heads of bloom may be grown in 48-size pots, but they require to be well fed with manure after the flower heads begin to develop. In forcing, the great thing is to give plenty of light and air. Too much artificial heat in dull damp weather should be avoided, otherwise the plants will run up tall and thin. With bright sunny weather plenty of heat may be given if it is desirable to hurry them on, but those grown in a moderate temperature are the most satisfactory. The above remarks apply to *H. Hortensia* and its variety *Otakas*.

Thomas Hogg, the white variety, is also a favourite, but is of more slender growth and has smaller heads of bloom. Two-year-old plants of this are the most satisfactory, but fairly good plants may be grown in one season if propagated early and stopped so as to get three or more breaks. Older plants will produce a number of shoots, but these should be thinned out, saving the shortest and strongest shoots. Plants in 48's will carry from five to seven heads of bloom, and those in 32's from eight to twelve, or even more, but a limited number of larger heads of bloom are, perhaps, more desirable. A. H.

PREPARING CUCUMBER PLANTS AND THE HOUSES TO PLANT THEM IN.—The first step to be taken in this direction is to wash the glass and woodwork inside of all houses intended to be planted with Cucumbers. Soft-soapy water, into which a little petroleum—say, a wineglass to two gallons—has been poured, should be used not only as a means of more effectively cleansing the glass and woodwork, but also of destroying any insects or their larvae that may be located between the glass and wood or the latter and the brickwork; afterwards washing the whole of the glass and woodwork with clean water, delivered from syringe or hose. This done, wash the brickwork with hot limewash.

Attention should next be directed to the preparation of the soil, and the formation of hillocks at intervals of 2 feet, and about 1 foot from the walls, on either side. Assuming that the soil used for planting the young plants of Cucumbers last January was new, no hesitation need be felt in using it again, incorporated with a like complement of peat-manure as a rooting and sustaining medium for setting out young plants in towards the end of January next. Therefore, all that is necessary to do is to level the old ridges well back towards the central path, picking out all roots—Cucumber-roots—in the process of turning over the soil. This done, wheel in some of the above-mentioned manure, or any other kind of short manure received in a state of fermentation, tipping a barrowful of this on the levelled ridges on either side the pathway, at intervals of about 3 feet from centre to centre. Afterwards mix the soil and manure well together into conveniently-sized heaps until required for use—first to form the hillocks on which to set the plants, and subsequently to add a layer thereto a few inches thick as the roots push through sides of the mounds, making additional top-dressings until the intervening spaces are made level with the tops of the mounds in which the plants are growing. Before making the hillocks, insert sticks in the soil, at 2 feet apart, the entire length of the house, and at about 1 foot from the walls on either side. Make the mounds about 16 inches deep at the apex and 2 feet wide at the base; the sticks indicating the positions of the plants should be secured to the first wire of the trellis to which to train the young plants when planted. Meanwhile, the seeds should be sown singly in 3-inch pots, a little more than half filled with some of the warm compost mentioned above, covering with a little of the same, and pressing it gently together with the hand. Stand the pots on a stage made over the hot-water pipes, and cover them with squares of glass, if at hand, to hasten the process of germination; removing the glass before the young plants come in contact with it. Fill the pots up to the rims with the same description of soil as the little plants are growing in, as a top-dressing, pressing it gently about them so as not to touch the stems, which in this sappy stage of growth are very susceptible to injury from the slightest pressure. When the plants have attained to a height of about 6 inches, and before the roots become matted in the pots, they should be either transferred to the mounds or shifted into 6-inch pots, using the same kind of compost as before, making this moderately firm in potting. Return the plants to their former position. Put a small stick to each plant for support, and water with tepid water to settle the soil about the roots.

In about two weeks' time these plants will be

ready for planting on the individual mounds, burying therein the same depth as they were in the pots, and pressing the soil well about the balls of earth and roots in planting, afterwards applying tepid water to settle the soil. Plants thus raised and planted in a warm, rich compost, in houses in which a minimum temperature of from 65° to 70° is maintained, necessarily make a rapid and satisfactory growth, a genial, moist atmosphere being observed in the houses so planted from beginning to end of the plants' growth. The fact of having a sufficient quantity of rich, warm soil in each house



FIG. 2.—TOMATO LISTER'S PROLIFIC.

wherewith to top-dress the hillocks as soon as the roots show through the sides of same is of the utmost importance in connection with securing weighty crops of high-quality fruit. The Rochford variety of Cucumber is the best to grow for market purposes.

TRAINING.—When the plants have reached the third or fourth wire of the trellis, they should be stopped, pinching the lateral or side growths at 1 foot, in order to hasten the development of fruit sufficiently to keep the shoots within legitimate bounds; and with this object all superfluous growths should be kept persistently removed. The object should be to cover the trellis thinly rather than thickly with short-jointed, fruitful growths in as short a time as possible. As a rule, well-cared-for plants, which are carrying heavy crops of crisp

fruit in various stages of growth, will not evince much disposition to make superfluous growth. Heavy crops of any kind of fruit are the best correctives of exuberant growth. H. W. Ward.

TOMATO, LISTER'S PROLIFIC.

"WITH brush and paint the artist can the landscape reproduce with pleasing correctness to the eye." Thus the poet. But very different is it with the gardener who, by chance or perseverance, hits upon some uncommonly fine and rare specimen of fruit, flower, or vegetable, in which he finds an all-absorbing pleasure in watching and tending. It would thus be my endeavour to sound the praises and describe the origin of one fine variety of the Tomato. I chanced to receive several packets of seeds from an American gentleman some years ago, which I gave to Mr. Lister, the nurseryman at Rothsay, N.B. After some time spent in testing and cross-fertilisation, Mr. Lister has been rewarded by a variety which calls for special mention. The new comer is sturdy, close jointed, a prolific bearer, and good for either early or late cropping. The fruits average six to the pound avoirdupois, are of a high colour, smooth and round, the flesh solid and of fine flavour. A. McLean, Curling Hall, Largs.

[Our illustration (fig. 2) taken from a photograph kindly sent by the writer of the note, quite confirms his statements in regard to the cropping capabilities of the variety, and the form of the fruit.]

BOOK NOTICE.

LES VIEUX ARBRES DE LA NORMANDIE, fasc. iv., par Henri Gadeau de Kerville. (Baillière et Fils, 19, Rue Hautefeuille, Paris.)

THIS is the work, or a continuation of the work, of an active and acute naturalist. It comprises photographic representations of twenty trees growing in Normandy, together with full details of their locality, identification, and dimensions. Among them there are several Yews, Poplars, Oaks, Beeches, and Limes. The most interesting of these to the English reader is, perhaps, the Mistle-bearing Oak, represented at tabb. xiv. et xv. This tree is growing at Isigny le Buat (Manche); the tree has a girth of 5 m. 37 at one metre from the soil, its height being between 17 and 18 metres. The photograph shows as many as forty tufts of Mistle on this tree. The author devotes a separate section to the Mistle-bearing Oaks of Normandy, from which it appears that the occurrence of this parasite on the Oak is nearly as rare in Normandy as it is in England, for the author only cites five instances.

CHRISTMAS ROSES.

Few flowers are more heartily welcomed than these, and perhaps none yield a fuller harvest with less trouble and expense when and where the plants are treated with due care and foresight. A rich loamy soil, verging into clay rather than to sand, suits them best, and should such soil need lightening or enriching, few ameliorators prove more congenial to the plants than liberal additions of leaf-mould, hot-bed or well-rotted farmyard-manure. The site and soil should be more or less shady, cool, and moist, though thoroughly well drained, and under no circumstances exposed to flooding or saturation with stagnant water.

Though for their size the Christmas Roses can hardly be called groes-rooting plants, yet under liberal culture they require a little good soil, two or more feet in depth, to do justice to their fine leaves and crowded crowns of blooms. Various modes of culture have been recommended, those based on a maximum measure of preparation and a minimum of future interference being generally the more successful.

They may be readily multiplied by division of the root-stocks, which, however, should never be parted with a knife or spade, but the whole mass should be lifted, and each separate crown or clump of crowns pulled apart carefully without destroying, breaking, or bruising the roots. The best time or state for propagation or removal to their quarters is shortly after the blooms fade. In the interregnum between the fading or finishing of the flowers and the starting of the leaves into vigorous growth, the roots may be transplanted with the least possible check or injury.

Where quantities of Christmas Rose flowers or plants are required for decorative purposes at Christmas time or early in the new year, it is well to grow a large stock of plants in a variety of sites and aspects. The distance between the crowns should be partly controlled by size, soil, purposes for which the plants are required, &c. The distances between the crowns or groups of crowns may range from a foot to a yard. For many purposes from 1 foot to 15 inches from plant to plant produces excellent material. To command early and long-lasting supplies of Christmas Roses they should be planted in quantities in single file, double or treble rows, at the foot of as many walls as can be spared. Some of the finest I ever saw were on gravel at the foot of a long terrace wall clothed with Tea Roses. Others were near on grass at the foot of another wall, and these were three weeks or more late, as a rule. Those at the foot of west walls continued the succession from the middle of December, and yet others on east and north walls yielded late harvests of Christmas Roses as long as wanted. South and other borders were altogether appropriated for blocks or masses of Christmas Roses. Other blocks were planted in sheltered and semi-shaded places.

It is a useful plan to plant Christmas Roses in blocks the size of two or three light frames. These, if placed over the Christmas Roses early in the winter, will hasten the blooming by a fortnight or three weeks, and preserve every flower pure and untarnished white as snow. Narrow glass lights run lengthways to enclose a row of these plants at the base of walls, also to hasten their blooming, and protect the bloom from hail, frost, and wind. Of course, too, the plants may be lifted, planted in a mild bottom-heat in pits or frames, or potted-up and placed in a temperature of from 45° to 55°. But these plants flower best under cool treatment, and most of the finest I have seen or grown have been those with wood, glass, or other covering in the open air.

In mild winters, and in sheltered gardens, the plants flower superbly in the open air, but the blooms often get spotted and tarnished by sudden storms and change of temperature; and hence, few things pay better than the use of portable glass frames, Rendle's glass and tile-protectors, *cloches*, and handlights, in the forwarding of Christmas Roses. The flowers being so much and so long ahead of the leaves renders some slight protection the more useful.

The peculiar form of the buds also act as a most potent sort of protection through their earlier stages. Neither frost, snow, hail, or rain, can very easily get to or remain in the central part of the bloom. Nor must it be assumed that either of these need injure the flowers much, or the plants at all, if they did. They might, however, mar the spotless purity of the blossoms as well as lower their price and lessen their artistic effect.

There is another very simple way of hastening and preserving the flowers of Christmas Roses. This is to cut them in bud, place them in a temperature of 50°, change the water daily, and cut a thin section off the end of the stalk every second or third day. Some add a pinch of guano, soot, smelling-salts, bone-meal, or other manure, liquid or solid, to add to the food-supplies, or preserve the water sweet. But these are not really needful for the evolution of perfect and spotless flowers from perfectly-formed three-quarter-developed buds.

For early work, and room or church decoration,

the common Christmas Rose, *Helleborus niger*, is still one of the most useful; *H. angustifolius*, with leaves and flowers smaller and earlier than the type; and the two or three varieties as *H. m. altifolius*, *H. m. major* and *H. m. maximus*, having flowers from 3 to 4 inches in diameter. There is also what may properly be called a fine-foliaged Christmas Rose of the same species, though it continues rather rare—a veritable *Helleborus niger*, with its foliage fringed with white.

In this connection it is not needful to refer to the other innumerable varieties, that are so admirably adapted for beds, borders, wild gardens, ferneries, rockeries, shrubberies; nor to describe or dwell on the importance of the *Helleborus niger* for the out-of-door decoration of gardens and pleasure-grounds. Single plants in all sorts of nooks and corners are always welcome, while few or none have ever been known to complain that their groups of Christmas Roses were too large, or their masses too heavy.

After planting, whether for early flowering in the house or under glass, or artistic effect in the open, masterly inactivity suits the plant best. An occasional soaking in abnormally dry weather, and an annual top-dressing every March or April after blooming, is about all the culture needed to not only maintain the vitality, but increase the flowers of these fine old plants. One of the most congenial top dressings consists of half of sweet leaf-mould and half rotted hot-bed or farm-yard manure. Of course the surface will be kept free from weeds, the dead flowers cut off to prevent the waste of strength in the formation of useless seeds (for practically they are useless unless for raising new varieties, as it takes six or more years to flower seedlings). The leaves should also be religiously preserved until quite matured. The more the crowns and roots get crowded, and the longer, in reason, they are left to establish themselves on the same spot, the more prodigal do Christmas Roses become. D. T. Fish.

THE WEEK'S WORK.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener, Stoke Edith Park, Hereford.

General Remarks.—A heavy snowfall, accompanied by frost of exceptional severity, caused a suspension of work in the hardy fruit-garden in mid December, but, happily, the snow did not lie long, and at the time of writing the various operations incidental to this department are again in full swing. Those who have kept pace with the calendar will have accomplished the bulk of the work, but for everyone so fortunate there are others who are in arrears, or have not yet made even a commencement. Any gardeners so placed must now push on with the work as energetically as possible. The principal work to be done at this season consists in pruning, training, nailing, or tying, as the case may be, together with the thorough cleansing of the trees, whether from a remedial or preventive point of view. These matters must, therefore, first engage our attention here, and they will be dealt with in rotation. The remarks that I shall have to make week by week will be based on lines upon which hardy fruit-growing is practised in these gardens.

Pruning.—Trees upon walls will first demand attention. The rule is to commence with Morello Cherries, but at this season it would be better, owing to their precociousness, to start with Apriots. Some growers train the Apriots in much the same way as they do the Peach; others lay-in young wood, and allow the branches to become well furnished with fruiting-spurs as well—both are good systems. It is seldom necessary to thin out young wood in Apriots-trees to a large extent, but when needful it should be done. Spur-growths must be shortened to three buds, and all dead snags cut away. Trees clothed with a quantity of old spurs that project some distance from the wall should be given a judicious "spur-pruning," that is, the oldest and longest of the spurs may be cut back to within half-an-inch of the branches from which they have grown. The small piece of wood so left usually contains a few dormant buds which break during the ensuing season; or dormant buds

situated on the branch itself will break, and the consequent growths form fruiting-spurs the first year. The chief point to be observed in spur-pruning is to spread the operation over at least two or three seasons, and thus avoid giving a severe check to the trees, and also the loss of a crop of fruit. Young trees need to have the wood thinned and regulated. Any trees that are growing too strongly should be lifted instead of using the knife severely, as this practice may result in "gumming." If the roots are laid out afresh in compost containing a good percentage of calcareous matter, and brickbats broken small, it will check the evil. Trees trained as cordons and clothed with spurs and kept summer pinched, or from which young wood is trained out at right angles to the stem, will need spurping back to three buds in the first case, and the wood thinned out if necessary in the latter.

PLANTS UNDER GLASS.

By T. EDWARDS, Plant Foreman, Royal Gardens, Frogmore.

General Remarks. At this season of the year many plants under glass should be partially resting, and need only sufficient water to keep the roots in a healthy condition, and prevent flagging of the foliage. Such free-growing subjects as *Allamandas*, *Stephanotis*, *Clerodendrons*, &c., should now be thinned out, and the growths shortened where necessary; this will not only benefit the plants and induce in them free flowering later on, but, where grown as creepers, will allow more light to reach the plants upon stages underneath. It is not advisable to commence re-potting plants generally until the days begin to lengthen, and roots are becoming active. Advantage should be taken of the present to have all plants thoroughly cleaned, and sufficient potting materials prepared, and put under cover. During exceptionally cold weather, temperatures should be lowered—60° or 55° at night will be quite safe for most stove plants. It is much better for plant life, to maintain a steady, moderate temperature, varying to some extent with the condition of the weather, than to insist on a rule (which was formerly in force at many places) that a fixed heat must be kept up every night and day. If frost occurs for any length of time, it will be advisable to move *Nepenthes* to the forcing-house and syringe them frequently with tepid soft water.

Poinsettias, Euphorbias, and Chrysanthemums.—January is not a very gay month for flowering plants; the blaze of *Chrysanthemums* is over, and *Poinsettias* are mostly past their best. The latter should not be packed away under stages, &c., but gradually dried off, encouraging them to retain the foliage as long as possible. Subsequently they may be laid on their sides under stages in a warm house until required for propagation. Select the strongest for stock, and throw away all late-struck plants. *Euphorbia Jacquinæiflora* requires more care after it has flowered, and should not be dried off like *Poinsettias*, but watered occasionally while at rest. *Chrysanthemum*-cuttings, if not already put in, should be made and inserted without delay, and the stool pots emptied and stored away. The old soil from *Chrysanthemum*-stools makes an excellent top-dressing for *Violets* on borders.

Bulbs in pots that were plunged in ashes or other material should now be examined, and if well rooted they may be removed to cold pits, and introduced subsequently to heat in batches as required. *Hyacinths* in glasses should also be brought to the light gradually: carefully lift each bulb, and remove all decayed scales. The glasses require filling to base of bulb from time to time—soft water is best. Pieces of charcoal in the water are often recommended, but I have grown *Hyacinths* in water both with and without, under the same conditions, without any difference being apparent in the quality of the flowers. Ladies often prefer *Hyacinths* grown in water, and for indoor cultivation glasses are interesting; but better results can always be obtained when grown in good mould, and those in pots can be used far more effectively for the furnishing of conservatories, and as plants in groups for indoor decoration.

FRUITS UNDER GLASS.

By J. ROBERTS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Vines.—At the beginning of the forcing season it is advisable to take stock of every Vine or other fruit tree that it is intended to force; and to

ascertain the conditions under which the roots are placed, and as far as possible rectify any defects that would operate against a quick and healthy root action. It is useless expecting good results from Vines that are not well-established, and growing under healthy conditions at the root. After a good deal of experience in making new and taking out of old borders, I have come to a conclusion that stratified borders are the best, and retain their power of aeration for the longest period. As this is the best season for commencing new borders, a few words on their construction on the stratified principle may be useful to beginners who desire to excel in the production of Grapes. Briefly it is as follows: depth of border, 3 feet 6 inches; place a 6-inch drain in front and the whole length of the border, and 6 inches lower than the bottom of the border. Into this run cross-drains from back to front of border at intervals of 10 or 12 feet apart, according to the dryness or retentiveness of the surrounding soil. Over these drains should be placed 1 foot of open drainage material consisting of rough brickbats and old mortar, covering this with good fibry turves of medium texture loam, grass side downwards. The work is completed by putting a layer of 3 or 4 inches of fine mortar-rubble, burnt ashes, limestone chippings, or road grit, between each layer of loam until the border is completed. Bones, soot, nitrate of potash, sulphate of ammonia, or any other approved manure can be very conveniently added with the layers of rubble as the work proceeds. A border constructed on this principle accelerates root action to a remarkable degree, and also accelerates the manufacture of food for the roots. It really constitutes "Living earth," a subject often referred to in past numbers of the *Gardeners' Chronicle*. When a beginner realises that it is possible to multiply root action as freely as to extend leaf growth, he will be on the way to success. Aeration and root ramification are too large subjects to go fully into here, but they will be referred to again when their influence on growth is more evident. Routine work will not be heavy just now. Pot Vines must be very carefully watered until several inches of healthy growth has been made. Disbud early any now breaking, so as to force all the strength of the plant into the selected growths; and any growths inclined to take the lead should be stopped a leaf or two beyond the bunch. Succession houses should be kept duly syringed and damped down, and at temperatures from 50° to 65° according to the stage of development in the Vines and the state of the weather. Prune, styptic, and thoroughly cleanse Vines in late houses as the fruit is cleared from them.

Late Houses containing Fruit.—Houses where the fruit is still hanging, should be kept at an equable temperature of about 48°. Keep the house closed on damp, foggy days, but take advantage of every fine day to open the ventilators to clear the house of moisture. Look over the bunches frequently, and remove all decayed berries. The Grape-room should be thoroughly cleansed and purified ready for the reception of any fruits it may be desirable to bottle. It will be of great advantage to the Vines—especially Gros Colmar—to clear them of their fruit as soon as possible after this date.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAP, Bart., Clare Lawn, East Sheen.

On forming a Collection.—Instances of good Orchid collections resulting from small beginnings are numerous, and in more than one case their origin was attributable to accident rather than design. In such instances the plants first obtained would probably be grown in structures containing other species of plants, and their welfare would depend a great deal on accidental environment and treatment. Where the plants succeeded the desire to acquire more would naturally follow, but where their cultivation was attended with failure the ardour of the owner would be damped, and eventually killed; the cultivator would probably be blamed, and the plants relegated to the rubbish-heap. The formation of an Orchid collection without first carrying out a few necessary alterations and additions to the existing houses is sure to be attended with large expense and mental worry. I would particularly impress upon gentlemen contemplating the cultivation of Orchids the necessity there is to make a good start.

The houses.—Before purchasing plants seek some reliable expert, and obtain his opinion on the suitability or otherwise of the existing glass structures, and have done what is considered necessary before the plants are obtained. I know very well that scientifically-built houses are not the only requisite to success, but when one has these, failure to grow the plants must be due to faulty attention or unsuitability of locality. The latter is a greater factor in the cultivation of Orchids than is generally admitted, and it is only by experiment that the deleterious qualities or otherwise of a district can be determined. When building new houses, do not put them at the north side of a high wall, no matter what class of plants it is intended to cultivate. Shelter from cold north and east winds is desirable, but by all means build on the south side of the wall if it exists, so that light of equal degree can reach the plants on both sides. The houses should run north and south, those running east and west are seldom so successful. Shade can always be afforded when required, but light, the greatest factor in Orchid cultivation, is not at our command.

The plants.—To the beginner, newly imported plants offer a much greater degree of possible success, and excite more interest than do established plants whose qualities are known, and have at the same time, to a certain extent, lost their native vigour. Hybrids naturally have to be either raised, or purchased from raisers. If speculation is not one's object, disappointment and complaint may be avoided by purchasing hybrids when in flower, or a guarantee should be acquired with the plants certifying to their genuineness. Newly-acquired plants should be thoroughly examined for possible insect pests, and means taken to rid the plants of them when present. Failing this, injury and mortification may follow, as I can sorrowfully affirm, for some years ago a plant came into this collection on which were a few "stock-seed" scale, and in a very short time these had increased and infested other plants, and even to this day we have been unable to eradicate the pest from the one house.

Keeping a Record.—The value and interest in individual plants may be greatly increased by keeping reliable records in a special book of their date of introduction to the collection, their origin, and the price paid for them. It will also afford evidence of the longevity of the various plants, and when notes are added concerning their size and condition when received, valuable knowledge will result.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Preparing Soil.—It is essential that land to be used for the cultivation of vegetables should be thoroughly drained either naturally or by artificial means, so that the surface water may pass quickly through the soil. As each quarter becomes vacant, deeply dig or trench the ground, taking advantage of dry and frosty weather to wheel on the manure or fresh soil necessary for the future crops. Soils of a heavy or clayey nature may be made more productive by trenching from two to three feet deep, and placing at the bottom a good layer of farmyard manure. If the latter be not available in quantity throw up the soil in a slanting manner, and on each layer throw some road scrapings, mould, grit or charred soil, and leave the clods rough upon the surface to be pulverised by the air and frost. Some leaf mould or other light material may be worked in later on. Soils of a lighter nature may be made more retentive by adding some fresh loam to the staple. If the sub-soil is gravelly, double dig the ground, but on no account do this when snow or frost is on the surface, as if buried in this state it would lay cold for months.

Borders with a southern aspect are the best possible for the growth of early Peas, and when digging and preparing these it is advisable to add leaf mould in preference to manure. Peas root more freely into this, and are not so apt to rot at the roots. Such positions it is intended to plant with early Potatoes may be dug, and the soil thrown up into ridges for the better exposure to air.

Pits not supplied with hot-water pipes will need to be furnished with some system of bottom heat to be used in forcing such vegetables as Carrots, Radishes, Potatoes, &c. Some stable litter and leaves (Oak if procurable), if well mixed together, will answer for this purpose. Use one part of the

former to three parts of the latter, and damp the whole, and turn it over two or three times. It will then ferment, and subsequently become ready for use.

Seakale.—Though some prefer to prepare crowns and lift and force them in a Mushroom-house or other warm structure, I have not found the system better than that of forcing the roots in the open ground. For the latter method the stools should be grown at a reasonable distance apart. Before placing the pots over the crowns, lightly fork up the surface of soil around them, and sprinkle over it some ashes and soot. Some well-fermented manure and leaves should next be laid firmly between and to cover the pots. The quality of the manure as well as the state of the weather must be taken into consideration in determining what depth of this is to be used. In no case must the temperature be allowed to rise over 60°. It is essential that air should be totally excluded from the plants, and if any of the pot-lids be faulty, some squares of turf may be used instead.

THE FLOWER GARDEN.

By J. BENBOW, Gardener to the Earl of Ilchester, Abbotsbury Castle, Dorset.

Flower Beds and Borders.—Much important work in the flower-garden may be done at this season. Any unoccupied beds and borders, the soil in which is considerably exhausted, may be much improved by the addition of a nutritive compost. Take away about one-third of the old soil and spread it over the nearest shrubberies, or over bare and unsightly roots of bushes and large trees. Or if screened and a little soot added it would form a useful top-dressing for the lawns. In place of the soil removed from the beds, afford a compost of matured turf with sufficient leaf-mould and sand (road grit preferable) added to make the whole freely porous. The turf used should have been in stack two years, associated with layers of manure and sprinklings of soot. This would work easily and be rich enough for most bedding and border plants. Wheel the new soil to the beds in frosty weather, or over planks, and thoroughly incorporate it with that already in the beds.

Bulb Garden.—Plant in these beds some dwarf-growing spring bedding plants, as *Myosotis*, Dwarf Wallflowers, Saxifrages, Sedums, &c. By this means a succession of bloom will be obtained, and the surface of the beds being furnished, a certain amount of cold will be excluded. If such plants be not used, apply a layer of Cocoa-fibre or fine leaf-soil over the surface, and if a sprinkling of soot or native guano be added it will keep down insects and scare the birds for a time, as they do not like either. Beds for Cannas, tuberous Begonias, and choice Dahlias should be made richer than for most other plants. Begonias like leaf-mould or peat added.

Bedding Plants in greenhouses and frames will require care to prevent "damping." Remove all dead foliage, and keep a sharp look-out for green-fly. Do not over-water the plants, nor encourage excessive heat. On favourable days give sufficient ventilation to keep the stock plants healthy and hard.

Herbaceous Borders which have been mulched with manure, leaf-soil, or charred remains from the smother or rubbish heap, may be lightly dug over in open weather. This rubbish should not be allowed to flame, but treated after the method of charcoal burning. The ashes are then more valuable, and may be used to advantage on stiff soils, or as little heaps round the more tender and brittle plants in the border to protect them from frost; also for marking those which are not to be disturbed in the process of digging. Such gross feeders as *Helianthus*, Perennial Chrysanthemum, *Iuclae*, Asters, *Phlox*, &c., should, during the digging, be restricted if not thoroughly divided. The spare pieces may be planted in copse or wood adjoining the grounds. Clearings or openings of this kind are sometimes seen from the residence, and if the landscape be hilly, pleasant patches of colour may be so obtained.

Roads and Drainage.—The routine of level taking, rolling all roads and paths during mild weather should be followed, and re-gravelling of any that require such attention; clearing away leaves and grit from drains and gutters. Good drainage is essential to all practical work in the garden.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	JAN. 9	Royal Horticultural Society's Committees, Meeting.
THURSDAY,	JAN. 11	Manchester Orchid Society, Meeting.
FRIDAY,	JAN. 12	Gardeners' Royal Benevolent Institution, Annual Meeting, and Election of Pensioners.

SALES.

MONDAY, JAN. 8.—Dutch Bulbs, Greenhouse Plants, Roses, &c., at Protheroe & Morris' Rooms, at 12.30 o'clock.
 WEDNESDAY, JAN. 10.—Japanese Lilies, Azaleas, Spiræas, Roses, &c., at Protheroe & Morris' Rooms, at 12.30 o'clock.
 FRIDAY, JAN. 12.—Imported and Established Orchids, at Protheroe & Morris' Rooms, at 12.30 o'clock.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—36'4".

ACTUAL TEMPERATURES:—

LONDON.—January 3 (6 P.M.): Max. 49°; Min. 44°.

Rain; dull; colder; wind N.

PROVINCES.—January 3 (6 P.M.): Max. 47°, S.W. Ireland; Min. 38°, N.E. Scotland.

How strange the figures look! how impossible it is to divine what the new year may have in store for us! We can only refer to some of the "fixtures" recorded in the Almanac given with the present number. From that record it would appear as if there would be little to ruffle the ordinary course of events, but the awful war-spectre is for the moment too much in view to enable us to look forward with much confidence as to the occurrence of anything out of the ordinary routine.

The Royal Horticultural Society's Committees will doubtless pursue their even tenor, and if they can manage to diminish the number of awards, of so much higher value will the others be. The society is said to be meditating some important step on the occasion of the centenary of its foundation in 1904, and will perhaps reserve any great effort till that time. There is, too, the feeling which is gradually spreading that the experimental garden at Chiswick must sooner rather than later be given up, as owing to its smoky, foggy atmosphere and urban surroundings, it is no longer suitable as the experimental garden of the Society. Of course, if this is really so, all the sentiment attaching to the old garden must be decently buried. The process will not be so distressing as once it would have been; for those who remember Chiswick when it was three or four times larger than it is now, and when it was really a horticultural centre to a much larger extent than it is at present, are fast disappearing. The new generation is mostly ignorant of what Chiswick has done in the past, and even if it hears "what our fathers have told us," it is not in its nature to display much reverence for an institution which has become more or less out of harmony with its surroundings.

The new Charter of the Society has not, up to the present, been granted, but when it is it will, we believe, be found to be much simpler than the old one, and the government of the Society will be largely by means of bye-laws. It will no doubt be difficult to frame

these aright, and much discussion and time must be expended in elaborating them. Nevertheless, there will now remain the satisfactory feeling that if any particular bye-law needs amendment, the improvement can be carried out easily in a constitutional manner, and we shall no longer be told that this or that cannot be done because of the Charter.

The Central Hall seems as far off as ever; and the Drill Hall, with all its obvious defects, is still what it was when it was first recommended by the committee appointed for the purpose, the most convenient site available.

Horticulture will be represented as usual at the Paris Exhibition, but in our experience horticulture on such occasions has been swamped and thrown into the shade by the multitude and magnitude of the exhibits in other departments. As far as Great Britain is concerned, it is probable that we shall be too much engaged in more serious matters to be able to devote much attention to the Paris Exhibition. We shall be thankful indeed if it prove otherwise. Fortunately, the best relations exist between the representative horticulturists of all countries. The death of HENRY DE VILMORIN is an illustration. No Frenchman could have mourned his loss more than we did. It is only necessary to refer to the Press of the two countries to see that in this case nationality was effaced, and human sympathy prevailed even over difference of race.

The Sweet-Pea Conference will no doubt be of some use in formulating the directions in which improvements should be sought, and in enabling some sort of a classification to be arrived at. Otherwise, the history of the plant is well known; its progress has been even; there has been no hybridisation to introduce important changes of structure; a sport, in the true sense of the word, has never been observed. On the whole, it would seem that the machinery of a Conference is hardly needed in the case of the Sweet-Pea; but, in any case, such a meeting can do no harm to any, and will give pleasure to many.

THE DUKE OF WESTMINSTER.—The death of this nobleman leaves the world of horticulture the poorer for the loss of a discriminating patron, and deprives the Gardeners' Royal Benevolent Institution of its president. The gardens at Eaton Hall, near Chester, have often been described in our columns.

SIR JAMES BLYTH, Blythwood, Stansted, Essex, has published a pamphlet under the title of the *Agricultural Awakening*, in which he alludes to the gratifying evidences we see in the shape of agricultural colleges, technical schools, travelling instructors, and the like, which we advocated so frequently in years gone by; at length we have the satisfaction of seeing some progress being made. We are still behind the Germans and our American cousins in all educational matters, and it is to be hoped that our present trials will lead to a national awakening.

SIR JAMES PAGET died on Saturday last in his eighty-sixth year. As a surgeon, at once scientific and practical, he attained the highest rank. He had a keen and receptive intellect, always ready to assimilate new ideas, while he sedulously maintained those which commended themselves to his judgment. Besides his great intellectual powers he had a rectitude of character and a charm of manner that endeared him to his associates, and caused his pupils to revere him. Readers of the *Gardeners' Chronicle* will wonder why a great surgeon not specially connected with horticulture should be thus spoken of in its columns. The reason is that PAGET was a naturalist, and derived his facts and framed his inferences from the diseases

of plants as well as of animals; and our columns have been in former years enriched by various communications of his on "Vegetable Pathology."

PROF. CARL HANSEN.—In celebration of the professional jubilee of this gentleman (known here as the author of the *Pinetum Danicum* in the Conifer Conference Report), it is proposed to place his bust in the Academy. Communications should be sent to M. CARL OLSEN, Jardinier en Chef au Jardin Zoologique de Copenhague.

SIR JOHN LUBBOCK.—There is no need to sound the praises of this many-sided man in the *Gardeners' Chronicle*. It is as naturalists that we welcome a past President of the Linnean Society as a peer of the realm. Possibly his retirement from the House of Commons will give him more leisure for those nature studies which are deservedly so popular. We trust that his connection with the University of London, of which he is the representative in Parliament, will not be severed.

EVERARD IM THURN, C.B.—Readers of this journal will feel no surprise at the honour conferred on this gentleman. It is, however, not as a traveller and a botanist that this honour is conferred, but for his diplomatic services in British Guiana, and his laborious work in connection with the Venezuela Arbitration.

ALPHAND.—A monument has just been erected in the Avenue du Bois de Boulogne to the memory of the great engineer and landscape-gardener, who did so much to transform Paris and make her the beautiful city she still remains.

LADY EMILY FOLEY.—The death, in her 95th year, of this lady, on January 1, is announced. The garden establishment at Stoke Edith Park, Hereford, is well known.

CHARLES DARWIN.—The thirteenth volume of the *Annals of Botany* opens with a portrait of DARWIN in middle life, and with a judicious sketch of his botanical work, which is divided into two distinct but mutually related sections, that which was necessary for the explanation of his species theory, that requisite to afford corroborative evidence, and that which, in the main, is physiological.

ROYAL HORTICULTURAL SOCIETY.—The first meeting of the committees of the Royal Horticultural Society in 1900 will be held, as usual, in the Drill Hall, Westminster, on Tuesday next, January 9. The Scientific Committee will meet at 4 P.M.

"KEW BULLETIN."—Appendix III. of this publication is devoted to the enumeration of the members of the staff at Kew, and the various governmental or academic institutions at home, in India, or the Colonies.

THE WEST INDIES.—The *Times* has recently contained some very long but very interesting articles on the economic condition of these islands. Jamaica, like the other islands, feels the pinch of the great reduction in the sugar and rum industries, but, on the contrary, she is recouping herself well in fruit culture—principally Bananas. An enormous trade with the United States has sprung up, and means are being taken to increase the trade with the mother-country also. Oranges, too, are very largely grown, the consignments to the States having risen in consequence of the "freezes" which affected the Florida Oranges. FROUDE says, the worst Orange I ate in Jamaica was better than the best I ever ate in Europe. Limes require more care in cultivation and in selection of suitable localities than do Oranges. The so-called Grapefruit, *C. decumana*, is what we know here as the Shaddock, or the Pomelo. A small form of it is the "Forbidden Fruit." It is pleasant to read of the work of the Botanic Gardens and of the part that the botanists have played in the development of cultural industries, and we may be sure that under the zealous control of Dr. MORRIS, much more will be done in future than has even now been effected. It is pleasant also to read just now

the following tribute to British rule paid by an American citizen:—"The universal aspect of order and respect for law that everywhere prevail in Jamaica are no less conspicuous than the natural beauties of the island, and are noted by any one who has travelled in the more unruly places of the tropics. The dread of unconscious violation of some trivial law which haunts one in Cuba, the feeling of being watched as in Puerto Rico, the suspicion of some other person's hand in your pocket as in Mexico, the fear of brushing against contagion at every step as in Martinique, San Domingo, and Hayti, are sensations which do not worry the traveller here. The stranger is welcomed with a sincere hospitality and courteous greeting; the island is clean, and the laws are for the protection of the visitor as well as of the resident—not for the robbery of the individual or the enrichment of the official. Thieves are confined in prison; those infected with loathsome diseases are isolated; rigid quarantine keeps contagion out, and health officials attend to public sanitation. Neatly uniformed constabulary of respectful mien and open eyes see that the laws are obeyed, and the poorest negro as well as the richest planter feels that they are for his special benefit and protection, and respects them in a spirit which is not found even in our own country. In fact, in the Government of Jamaica we have an example of that perfection of colonial administration in which England excels."

JAFFA ORANGE.—"It would be very interesting," writes Sir W. T. Thiselton Dyer, "to ascertain from what source the Jaffa Orange was introduced into Syria. The available information with respect to it was collected in an article in the *New Bulletin* for 1894 (pp. 117-119). The conclusion was, that it had been brought from Malta. In the *United States' Consular Report on Fruit Culture* (January, 1894, p. 599), it is stated that in Sicily 'oval fruit are preferred for commerce, being more durable.' But whether these are the same as Jaffa Oranges does not appear. Risso and Poiteau describe an *Oranger à fruit elliptique* as to be found in gardens at Nice. But the fruit is said to be small, and the description does not agree in other particulars with the Jaffa Orange. I have never myself seen an elliptical Orange anywhere on the Riviera. There is an interesting article on 'Orange-growing in Jaffa,' in *Chambers' Journal* for October 17, 1896. The writer states:—"In the vernacular the name for Orange is Portugan, doubtless a corruption of the word Portugal, and is an indication that the Orange was probably in the first instance introduced into Palestine from Portugal; but as it is not recorded when or by whom this tree was thus introduced, the origin of the name can only be a matter of surmise."

THE AMERICAN DEPARTMENT OF AGRICULTURE.—The Bureau of Agriculture was created in 1862 under a Chief Commissioner, with Mr. SAUNDERS as horticulturist, and a department chemist. In 1863 a statistician and an entomologist were appointed. Various departments were gradually established, so that at the present time there is the weather bureau, under Professor WILLIS MOORE, the bureau of animal industry, the division of statistics, the division of botany, under the management of Professor F. V. COVILLE; the division of forestry, under Mr. GIFFORD PINCHOT; the division of vegetable physiology and pathology, under Professor GALLOWAY; the division of seeds, the division of publications, the division of pomology, with Col. G. B. BRACKETT at the head; the division of agrostology, dealing with pasture grasses, and under the management of Professor LAMSON SCRIBNER; the division of soils, the office of public road inquiry, the division of entomology, under the direction of Mr. HOWARD; the division of biological survey, the section of foreign markets, the office of experiment stations, the division of chemistry, the library, the museum, and the division of finance. At first, our own inferiority in such matters bulks very large, but we have a very

restricted area as compared with the vast territories of the States. We are indebted to Mr. W. L. MOORE, Pilotpoint, Denton co., Texas, for the information above given.

"THE GARDENERS' MAGAZINE," CHRISTMAS NUMBER.—It is rather late in the day to speak of this, but none knows better than our contemporary the reason why. Moreover, the contents are such that they are seasonable at all times, so that when the rush and turmoil incident to the holiday season have passed there may be time to appreciate the good things the *Magazine* has provided. We shall not index the contents, we prefer to let the reader see for himself what there is in it, confident that he will have a good time—as the Americans say.

FERN STEALING.—The *Devon and Exeter Gazette* records the infliction of a fine of £10 and costs upon a notorious Fern-robber, who had been frequently convicted of a similar offence. Being unable or unwilling to pay the fine, the culprit was sentenced to two months' imprisonment with hard labour. It is to be hoped that this sentence will tend to check the deplorable vandalism which ruins the beauty of the country.

"ANNE PRATT'S FLOWERING-PLANTS."—The re-issue of this useful book, under the editorship of Mr. EDWARD STEPHENSON, proceeds steadily. It is of value to beginners, and to those who do not care to go very deeply into the minutiae of botany. To speak of "orders" and "tribes" as synonymous is to cause needless confusion. The illustrations are faithful. It is published weekly by F. WARNE & Co., 15, Bedford Street, Strand, W.C.

"NATAL PLANTS."—It is pleasing, in the midst of the war, to receive a copy of Mr. MEDLEY WOOD'S *Natal Plants*, or rather the first part of the second volume, which is devoted to grasses. The great value of pasture-grasses in such a climate will be readily recognised. The botanist in studying them may, in the long run, be rendering a greater service to humanity than is the warrior. Unfortunately, it seems as if it would be some time before we can dispense with the services of the latter.

"THE GARDEN ANNUAL."—This useful Almanack and Address-book for 1900, published at 37, Southampton Street, London, W.C., is to hand, and as usual contains a vast amount of information to all engaged in horticultural pursuits. Greater care is nevertheless necessary to keep the list of addresses up-to-date. In respect to the list of botanical and horticultural societies, for instance, we have found that the names of secretaries given are very misleading. Everyone should know by this time that Mr. BARRON has ceased to be the Secretary to the Royal Gardeners' Orphan Fund.

"REVUE DE L'HORTICULTURE BELGE."—The last two numbers have been taken up with an exhaustive and well-constructed Index, which will be of the greatest service to those who have to search the records of horticulture in the last quarter of the nineteenth century. The January number opens with a suggestive address to the readers, in which the association of labour and capital for a common purpose is foreshadowed. M. LEON VAN DEN BOSSCHE gives us a botanical study of *Eutaxia*, which shows how much interest is lost by those who are not botanists but cultivators only.

WELLS' CHRYSANTHEMUM CALENDAR, 1900.—This is a large sheet almanac, containing cultural notes for each month in the year, issued by Messrs. W. WELLS & Co., of Earlswood, Surrey. In the centre of the sheet is a fine coloured representation of the bright decorative Chrysanthemum *Etoile de Feu*, the qualities of which were described in the *Gardeners' Chronicle*, November 4, 1899, p. 348. There are also ten additional varieties, most of them novelties, illustrated on this sheet.

"MY GARDEN DIARY FOR 1900."—This is a delightfully artistic garden diary, published by Messrs. SUTTON & SONS, Reading. It is, however, as useful as it is ornamental, and the page of "Reminders" given with the calendar for each month are well calculated to bring the work of the moment to the mind of the gardener. A little space reserved for the entering of memoranda will be much appreciated.

VARIATIONS.—Mr. A. C. BARTLETT, of Pen-carrow Gardens, Cornwall, obligingly sends us a specimen of *Retinospora plumosa*, produced from a tree of *C. pisifera* of eighteen years' growth. It is very hard—perhaps we had better say we are quite unable—to assign the reason for this sudden change. Mr. BARTLETT also tells us of an Irish Yew planted about 1830, which has lately thrown up from its base a robust shoot of the common Yew.

THE SCHLEGEL ORCHID COLLECTION BURNT.—We see, from *American Gardening*, that the greenhouse range of Mr. GEO. SCHLEGEL, at First Avenue Bay Ridge, N.Y. (gr., Mr. Geo. Garrett), was destroyed by fire recently. The area of the four houses destroyed was about 3,600 feet, and the plants in another house, 75 by 24 feet, are lost through heat and smoke, though the structure itself still stands. The Schlegel collection of Orchids was one of the most famous in the neighbourhood of New York City, and together with the miscellaneous and general stock, may be valued at 20,000 dollars. Among the lost specimens were several *Phalenopsis*, estimated worth 600 dollars; *Lælia Arnoldiana*, *Cattleya Arnoldiana*, *Lælia Schroderiana alba*, *Vandas suavis*, tricolor, and *Sanderiana*, and two fine pieces of *Cypripedium Morganæ*. A very fine collection of *Cypripediums*, embracing all the best forms; a large lot of *Cattleyas*, and a representative lot of *Anthuriums* were also lost. We understand that the houses will be rebuilt at once.

HINTS TO PROSPECTIVE EMIGRANTS.—The following particulars are extracted from a circular just received from the Emigrants' Information Office, 31, Broadway, Westminster, S.W.:—"It is too early in the season for the ordinary emigrant to go to Canada, unless he has friends to go to or money to keep him till the spring, when there is likely to be the usual demand for competent farm labourers. In New South Wales there is practically no demand for ordinary farm or station hands, miners, or mechanics, unless they are specially competent and have a little money when they arrive. In Victoria there is not much improvement in the general demand for labour, except that a considerable number of those out of employment have been set to work on railway construction. There has been a remarkable increase in the number of females employed in factories, their numbers having doubled since 1888, whereas the number of male *employés* has declined. There has been a considerable amount of settlement on the land recently, and dairying has made special progress. In South Australia there has been a demand for farm hands, and for married couples without children for farm and station work. There is no demand for more mechanics in Adelaide or elsewhere, but miners have been well employed, and there is the usual demand for female servants. In Queensland there is a good demand for farm labourers, miners, and female servants, and for married couples in pastoral districts. Free and assisted passages are now being granted to farm labourers and female servants from seventeen to thirty-five years of age, who have never been otherwise engaged. In Western Australia the population, though it has rapidly increased, is still small, and therefore the demand for all kinds of labour is necessarily limited. Rents have fallen, and the cost of living has declined. The chief demand is for miners, farm labourers, and for female domestic servants; free passages are being offered to the latter. In Tasmania the supply of farm labourers is sufficient. In New Zealand competent bush-

fellers, road-makers, farm hands, and shearers have no difficulty in getting work in country districts during the present busy season. With regard to South Africa, persons are warned against going there at the present time in search of work.

THE ART AND CRAFT OF GARDEN MAKING.

—MR. THOMAS H. MAWSON, Garden Architect, is about to issue, through Messrs. George Newnes and Co., a book under this title, illustrated by a large number of perspective views by C. E. MALLOWS, and over 100 plans and details illustrative of garden design. The subject will be treated under these headings:—Garden Making Old and New, The Choice of a Site and its Treatment, Fences and Gates for Garden and Park, Entrance Gateways, Carriage Courts and Drives, Terrace and Flower Gardens, Lawns and Garden Walks, Summer Houses, Trellis Work and Garden Furniture Conservatories, Greenhouses, Vineries, and Fruit Houses, The Treatment of Water as Fountains, Lakes, Streams, and Ponds, Kitchen Gardens and Orchards, The Formal Arrangement of Trees and Shrubs as avenues, hedges, &c., Planting for Landscape Effect, Trees, Shrubs and Conifers, Hardy Climbers and Roses, Hardy Perennials, Aquatic Plants and Ferns, Examples of Gardens with Plans and Perspective Views.

PUBLICATIONS RECEIVED.—*The Century Book of Gardening* (George Newnes, Ltd., 7-12, Southampton Street, W.C.), Part 17.—*Unwin's Chap Book*, 1899-1900 (T. Fisher Unwin, London).—*Pharmaceutical Journal*, December 23, 1899.—*The Gardeners' Magazine*, Christmas Number, December 23, 1899.—*Le Mois Scientifique*, Octobre-Novembre, 1899 (Librairie J. B. Baillière et Fils, 19, Rue Hauteville, Paris).—*Le Monteur d'Horticulture*, December 25, 1899.—*Illustrirte Garten Zeitung*, December, 1899.—*Geschiede Allgemeine Gartner-Borse*, December 10.—*Tijdschrift voor Tuinbouw*, Vijfde Jaargang, Zeede Afslevering.—*Indian Gardening*, December 7.—*La Semaine Horticole* (79, Rue Wiertz, Brussels), December 23.

BLENHEIM.

[SEE SUPPLEMENTARY SHEET.]

THE famous seat of the Marlborough family adjoins the little town of Woodstock, some eight miles from Oxford. The park is very extensive, with undulating surface and noble Oaks. It was originally laid out by Wise, but its most remarkable feature is a lake constructed by "Capability" Brown, it is said, within a week. It is spanned by a fine bridge, and is one of the largest sheets of water in the kingdom. The mansion, of which the east front is shown in our illustration, was built by Vanbrugh. It contains a magnificent collection of pictures, and was recently visited by the German Emperor, who planted a tree (*Picea pungens glauca*), as a memorial of his visit. The sunk flower-garden is formal, in accordance with the style of the house, the flower-beds intermingled with Irish and golden Yews and clipped Portugal Laurels.

This Italian garden, situated on the east of the Palace, forms one of the most attractive features of those which contribute to the permanent beauty of this residence.

From the accompanying supplementary illustration a very good idea of it during the summer may be gathered. Considerations with regard to the method of planting the beds for producing an agreeable variation from year to year are taken, corresponding with the extent of the design. Much forethought is necessary to anticipate and provide for the alterations that may be decided on from year to year. Although the past season was not altogether a favourable one in the Midlands, this garden presented a very satisfactory appearance throughout the summer; the choice and arrangement of the colours being admirable.

The design of the garden is contained within a quadrangular figure, the length being about 260 feet, and the breadth 160 feet. This includes the exterior portions of the lower terrace-beds, and those of the sides, but not the verges and walks by which it is encompassed.

A broad central path divides the four sections containing the largest of the flower-beds, each of these being similar in form to that most conspicuous in the illustration.

They are individually ornamental grass-plots. The walk is interrupted by a central bed, surrounded with a margin of grass 4 feet in breadth, and corresponding with that of the general design. This forms the central feature, and, as compared with the surrounding beds, is rather larger, having a diameter of about 40 feet. Circular beds, 16 ft. in diameter, occupy positions in this walk, each forming central points at either end, and in addition large specimens in tubs, of both the green and variegated-leaved American Agave are utilised in the central path in a line with the beds, which are furnished with Palms and other ornamental-leaved plants. Palms are likewise introduced in the other circular beds, and together with those mentioned afford relief to the masses of flower colour, at the same time from all points of view are decidedly picturesque.

During last autumn a fountain, with basin, has been erected on the site of the central bed, which will doubtless in the future enhance the beauty of the *tout ensemble*.

Running the whole length of the garden, on either side, are long continuous borders, 7 feet wide, down the centres of both being circular beds, forty-two in number and 2 feet in diameter, surrounded with spar, dwarf Box being used as an edging throughout. The two flights of steps at the lower end are flanked with oval and hexagonal lozenge-formed beds, similarly disposed.

Some particulars may be given in connection with the number of plants Mr. Whillans the gardener has to provide to furnish the garden. There were used in the past season: 8,000 Pêlargoniums, 2,000 Begonia *semperflorens*, 12,000 Alternantheras, 10,000 Lobelias, 2,500 Ageratum, 2,000 Iresines, 1,400 tuberous Begonias, 1,000 *Centaurea ragusina candidissima*, and 800 yellow Calceolarias.

Contributing considerably to the general effect of the garden are the golden English Yews, clipped in various forms, which rise from a carpet-like base of yews in beds situated in the front of the conservatory range, which forms one of the boundaries of the garden.

ALPINE GARDEN.

CONVOLVULUS LINEATUS.

BUT for the shyness of its blooming in many gardens, and its rambling habit at the roots, the neat little *Convolvulus lineatus* would deserve a choice place in the alpine garden. These faults are, however, not readily overlooked, but he is fortunate who can induce it to flower freely. Even in gardens where it gives little or no bloom, it is neat and pretty with its lanceolate, silky leaves, whose silvery appearance makes it attractive to those who can appreciate such quiet charms. Those, however, who can persuade it to flower, or whose soil suits its needs, are more than pleased by the additional beauties of the reddish-purple flowers. It is a matter of regret that one cannot indicate with confidence the precise treatment which will be sure to make the plant flower regularly. It does not appear to like a heavy soil, but prefers a light and warm one. Even this will not persuade it to flower in some places. In the writer's garden it blooms but seldom, even with the adoption of what one considers the best remedy for non-flowering in the case of *Convolvulus lineatus*, i.e., the addition of a little lime-rubbish or limestone to the soil.

The running habit, although not so pronounced as in the case of some others of the genus, is yet sufficiently troublesome to cause one to take precautions against it by means of enclosing the space it is intended to occupy in such a way that it cannot encroach upon other plants. These faults notwithstanding—and one is prepared to admit that they are serious enough—we have reason to think that this "Pigmy *Convolvulus*" is worth growing. Its low stature of some 5 or 6 inches is a merit of consequence in the rock-garden. Although it comes from South Europe, it is fairly hardy.

ENOTHERA OVATA.

This pretty little Californian Evening Primrose has survived for two years in the open without any protection, so that one is inclined to think it hardy enough for all practical purposes in this garden. I take it to represent a type of plant of which we can hardly have too many in a choice collection of alpinists.

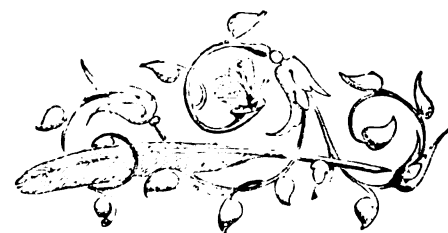
It is easy enough to obtain almost any number of plants which are exceedingly decorative on large rock-work, but it is difficult to have too many of dwarf habit which can find a fitting place either in the largest or the smallest rockery. In certain genera, such as the Saxifragas, we have many such flowers; but our natural, and within certain bounds, commendable desire for variety, leads us to seek plants of other habit, or with flowers of different shape or colour. Among the *Enotheras* we have a few others which are precious for this purpose. Some of these, such as *E. caespitosa* and *E. taraxacifolia*, are of more effective appearance than the one under notice, but it has, by way of compensation, qualities they do not possess.

It is not easy to convey in words the impression made upon the observer by this *Enothera*. A botanical description lies within the province of the botanist, and the writer can only attempt to speak of the general effect of the little plant and its flowers. It forms a neat little plant, with ovate, light green leaves, some 3 or 4 inches long, and resting close to the soil. From the centre arise the flowers on short stems, an inch or two in length at their highest. These flowers are pale yellow, and remind one of nothing so much as those of our common Primrose. They are of almost similar size.

Enothera ovata thrives well in this garden in very light, dry, and sandy soil, and in a position where it is shielded from strong sun, without being in full shade. It is a day bloomer, and is considerably superior to the Evening Primrose, known as *E. pumila*, which is more often met with. *S. Arnott, Carsethorn-by-Dumfries, N.B.*

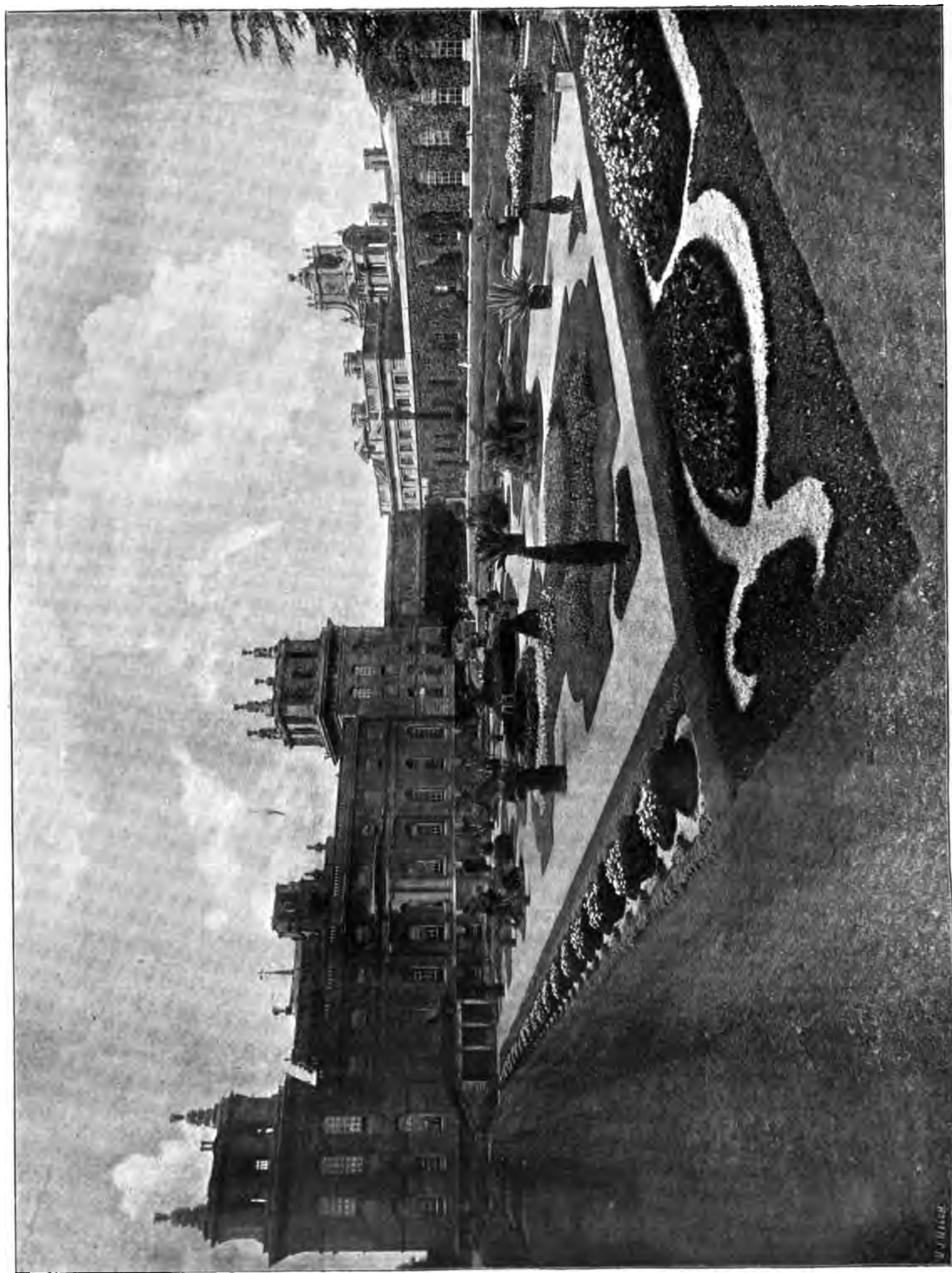
CARNATION SOUVENIR DE LA MALMAISON.

IN the *Gardeners' Chronicle* for August 26, 1899, a correspondent described the features of the gardens at Davenham Bank, Malvern, the residence of C. Dyson Perrin, Esq. (gr., Mr. Jas. Charlton). The Carnations then in bloom were stated to be very fine, and a group of "Malmaison" varieties arranged on the floor of the conservatory displayed as many as 570 expanded flowers. A specimen-plant of this type, from the Davenham Bank collection, we are now able to reproduce in fig. 3. Tree-Carnations are also grown with much success in these gardens.



HOME CORRESPONDENCE.

SOIL MOISTURE.—Unless we get a very heavy rainfall during January and February, then is it most probable that next summer gardeners will have again to face a very dry and difficult season. That each of the preceding dry summers gave trouble enough there can be no doubt. But a yet further one with the subsoil still so depleted of moisture as is now the case, may well make gardeners anxious, and no amount of anxiety can bring rain: that will come only when natural causes operate to produce it. Even the best laid schemes



THE ITALIAN GARDEN AT BLENHEIM PALACE, OXON.

for water storage and use in dry seasons fail often because the rain to supply the reservoirs fails to come, and then the gardener is as helpless as is the unfortunate one who has no supply but the scanty one which nature furnishes. Cisterns, tanks, reservoirs, mains, are all created in vain if after all nature refuses to fill them with water. In such case there is no better resource than is found in deep cultivation. But deep culture means hard work, and because it is such it is too often shirked in smaller, especially in amateur gardens. In our best private gardens, trenching, and deep trenching too, is, as a rule, as much a part of the ordinary

Very much depends on the crops, but there are few strong growers of the summer that do not root deeply when they are both permitted and encouraged to do so. Surface manuring is very well in moist seasons, because shallow roots then find food and moisture, but it is best to invariably regard a dry summer as possible and even probable, and therefore, if deep manuring, in addition to deep working, encourages roots to go deep, the gain in dry seasons is very great. How many of those persons who garden, persuaded of the value of deeply worked soil for Celery, Peas, and Runner Beans, prepare for them receptive deep-worked and

bish, but in many gardens the rubbish constitutes the chief manure, and when with it as thus treated is added three feet trenchings, the results in crop production are remarkable. There is yet ample time for deep trenching of garden ground. It is difficult to find at this time of the year more healthful or more profitable occupation. Young men in houses would rejoice to have a couple of hours daily of such exercise. A. D.

GEOLOGICAL FORMATION AND THE COMPOSITION OF A SOIL.—The following notes of a paper read by Mr. A. Bernard lately at the International Chemical Congress appear in a recent number of the *Agricultural Gazette* by Mr. R. Hedger Wallace. These notes may prove a suggestive sequel to the article upon the Constitution of Rose Soils in the *Gardeners' Chronicle*, December 16, 1899. Mr. Bernard arranged the relationships between the geological constitution and chemical composition of soils under six classes. "The number of analyses are given in each class on the results of which the deductions have been drawn. These deductions may not be correct, but they form at any rate the basis on which practical experience will lead one to form a comparative opinion for himself. The six classes in question are as follows:—1. The granitic soils are generally poor in phosphoric acid, and destitute of lime (90 analyses). 2. Clay soils are compact and tenacious, poor in phosphoric acid, but rich in potash (22 analyses). 3. Lias soils are remarkably rich in phosphoric acid and potash (75 analyses). 4. The calcareous soils are very fertile and less tenacious than the preceding (53 analyses). 5. Soils of the Oxford formation are strong, rich, clayey, calcareous soils (90 analyses). 6. Ferruginous clays and sand are very poor soils, extremely deficient in lime and phosphoric acid (230 analyses). Mr. Wallace thus concludes his brief notes. This paper has not had the attention given to it that it deserves, and perhaps the brief *résumé* now given will lead to the subject being discussed. For instance, we do not think a red clay is as bad as it is made out to be." Nor do I. I have known red loams approximating to clay in tenacious properties with skilful culture and manuring, and additions of lime, to yield heavy crops. D. T. F.

RAINFALL IN EAST SUSSEX IN 1899.—The following is the total rainfall for the past year—23·08. During September the fall was heaviest, it being 4·10; and August witnessed the least, viz., 0·57. Wm. Camm, Battle Abbey Gardens.

YELLOW-FLESHED AND UP-TO-DATE POTATOS.—Having considerable sympathy with Mr. Harrison Weir in his quest for yellow-fleshed Potatoes, I am rather sorry that he could not pursue his hobby without wasting his energy in a needless attempt to remove from our lists and markets the variety Up-to-Date, one of the finest white-fleshed Potatoes in existence. Given wise culture, and careful cooking, there is no fear of this superb Potato proving tasteless, or choking your distinguished correspondent with its balls of flour. Up-to-Date sells about second in price, or equal to Dunbar Main Crop or other prime sorts. Yellow-fleshed or coloured-skinned Potatoes are not popular—hardly saleable in our markets. The flesh and skin must be sweet as a nut, and white as driven snow, cooked and uncooked. Clarke's Maincrop, which I grew for years, is still one of the best of the Champion class, and is a fine doer and cropper, as is likewise Stourbridge Glory. But having grown and eaten Up-to-Date from a very early stage in its history, and finding it specially good in cropping, constitution, eating, and disease-resisting, I have strongly recommended it in technical education lectures, &c., and never heard a single complaint against it before. Should Mr. Harrison Weir succeed in giving us a golden-fleshed Potato equal in constitution, cropping, and flavour, to Up-to-Date, not a few of us would welcome his success in this new field. D. T. Fish. P.S.—The above was written some days before the *Gardeners' Chronicle* for December 23 arrived. In the presence of Mr. Harrison Weir's genial face, and details of the distinguished life of your much honoured correspondent, one's first impulse is to withdraw all said about white or yellow-fleshed Potatoes; but second thoughts are not seldom best, and as you have shown us that Mr. Harrison Weir is a much abler gardener than most of us wot of, and has even won some of his horticultural spurs amid the mazes of double, treble, and multiple grafting, it may be best to



FIG. 3.—A SPECIMEN PLANT OF SOUVENIR DE LA MALMAISON CARNATION, AS GROWN IN THE GARDENS OF C. DYSON PERRIN, ESQ., DAVENHAM BANK, MALVERN. (SEE P. 10.)

garden routine as mowing lawns is in the summer, and with what excellent results? How many gardeners are there who found last summer salvation for their crops in the deep trenching of the soil, and consequent retention of moisture, small as it may have been, and deep root action on the part of crops. In many gardens the crops produced on such soils surprised the gardeners themselves, and served to enforce the lesson for good that trenching teaches. But in such high-class gardens not only is it the rule to trench largely and deeply but also to manure deeply, for roots seem to as instinctively seek for manure when low down as a hungry dog does for a buried bone. I have read of persons objecting to the practice of burying manure deeply, on the ground that roots would not benefit by it.

manured trenches, yet seem unable to grasp the fact that similar culture given to Onions, Cabbage, Potatoes, or indeed anything else, would have similar good results. In one large garden attached to a Boys' Home I once observed that a trench three feet wide and of the same depth was always kept open in the vegetable quarters, and into the bottom was placed all the lawn mowings, hedge or shrub trimmings, and general garden refuse, twelve inches deep, then trodden down, and the next trench of soil thrown upon it. This method of disposing of refuse was adopted partially from sanitary motives and partly from cultural ones, but the results were great so far as crops were concerned. Those who have at hand ample supplies of animal manure and leaf-soil may prefer to burn their rub-

hold him to the challenge already given—that of providing us with a golden-fleshed Potato, equal in quality and profit to Up-to-Date. Then shall we all join in your generous wish with one addition. Long may he continue to be as one—

“Who loveth well

Both man, and bird, and beast,
And golden-fleshed Potatoes!”

D. T. Fish.

COE'S GOLDEN DROP PLUM.—I do not know how late this excellent Plum can be kept, not having seen it later than November, but I can endorse what has been said by my old friend, Mr. Fish, that it is a fine bearer, and one of the most valued of Plums. I have practised gardening in seven counties in England from my youth upwards, and this Plum was considered to be one of the best and most profitable. In Wilts, Oxford, and Suffolk, it was found in most gardens in various aspects, and did capably against north walls. I have not seen it on north walls in Scotland, and would be glad to know if it succeeds in northern aspects beyond the Tweed. I have not seen any Plum, apart from those upon walls, succeed in north Scotland, except Victoria. How have Plums succeeded as standards or bushes at Gordon Castle?—where much attention has been given to their culture by the late Mr. Webster, and by his son, the present gardener at that fine place? I have seen Peaches and other fruits do well along the Moray Firth coast, which succeed indifferently in the midland and southern counties of Scotland. I know well the good effect of keeping the roots high, and preventing their downward growth in counties not favourable to choice fruit cultivation. M. Temple, Carron, N.B.

INFLUENCE OF STOCK UPON VINES.—This is an old but important subject. It is many years since I inarched Vines (I prefer this method to ordinary grafting), and have always seen the effect of the stock in some form. Muscat Hamburgs on Black Hamburg, Golden Hamburg on Esperiones, Duchess of Buccleuch on West St. Peter's, are some of the amalgamations that gave satisfaction, by increased size of berry and greater flavour. Before me at the present time (while bottling Grapes for late use) are some examples of Grapes that have been grafted on stocks which influence fruit and foliage. Gros Colman inarched on White Tokay are always large in berry and fairly coloured generally, but they are less juicy than those on their own roots, and take at least a month longer to ripen. They often swell to 1½ in. in diameter. Gros Colmar on Gros Guillaume are smaller than on their own roots. The berries are very round, and always colour well, but the flavour is not equal. Mrs. Pince grafted on Gros Guillaume are smaller in berry than on their own roots, firmer, and colour well. I consider Gros Guillaume one of the worst stocks on which to ingraft other Vines. Duke of Buccleuch on a Black Hamburg does fairly well, but not better than on its own roots. This Grape assumes a beautiful golden colour when left fully exposed to the sun from the first formation of the berry. Spotting is often caused by shading the fruit in their early stages. M. Temple, Carron, N.B.

JERUSALEM ARTICHOKE.—There are great quantities sold during the season in Covent Garden Market, usually in bushel baskets or sieves. Of the two varieties known to the writer, one pink and the other white, the latter has recently commanded the best trade, because they have been of larger size, and better shape. Other points equal, colour is not of much consequence. Some growers seem to think anything will do to send to London; but it is a great mistake, as there have been recently many parcels of ill-shaped tubers quite unsaleable. Artichokes for sale in Covent Garden should be of large size, perfect shape, and smooth. T. P., Covent Garden.

THE “HATFIELD” CURE FOR RED-SPIDER.—The above title accompanied a note in the *Gardener's Chronicle* for December 16, from Mr. R. Dean, who paid me a visit in the evening of September 2 last. The vineries were inspected in common with the rest of the gardens, and one of these was being fumed with sulphur for the destruction of the troublesome pest red-spider. This interested Mr. Dean. I do not claim to be the first to fume with sulphur direct over fire for the destruction of red-spider. I have read of it and heard of it from growers. Believing that fumes from sulphur was the one means of destroy-

ing red-spider on Vines without burning the leaves or disfiguring the fruit upon the Vines, I resolved to try it myself. The thought occurred to me that Richards' system for fuming tobacco juice would answer equally for sulphur, and I have found it answers admirably. Mr. Richards' large-size lamp, and cylinder for covering lamp, with a tin (baking-tin) formed my apparatus. Besides the baking-tin for containing sulphur, I used other receptacles, such as saucepan-lids, and lids from canisters. In my second vinery last season, when the Grapes were approaching the stoning stage, red-spider was found at one end. The vinery is 27 feet by 17 feet. I began experimenting by fuming sulphur, very cautiously, the first evening with one lamp. On examination the next morning. I found neither foliage nor spiders were affected. The next, and for some evenings afterwards, I increased the amount at the rate of one lamp at a time, up to eight lamps, beyond which strength I thought it was not safe to go. I was much delighted with the result. The following morning, after using eight lamps, not a live spider could be found, neither was a leaf scorched, nor a berry disfigured. The spiders infested the foliage about eight feet along the vinery. The yellow tint, from the effects of the spider, was markedly apparent, and remained so until the autumn; while the other foliage remained quite green. Other vineries, when the Grapes arrived at the stoning stage, were fumed on two evenings consecutively, or alternately, according to convenience, and at about the same strength, viz., one lamp to 800 or 900 cubic feet of space. During the remainder of the season the operation was repeated at intervals of two or three weeks, which kept the Vines clean to the last, without damaging any foliage, with the exception of one vinery, where the foliage was burned. This one occurrence was very trifling, when compared with success on upwards of fifty evenings. As well as vineries, I have fumed other houses, at the same strength, such as Peach-houses, after the fruit was gathered from the trees. The spread of spider was arrested without burning a leaf, or causing one to fall. My next trial was for scale on Palms, but I cannot say whether it did good or not. The same applies to rust on Carnations; but for white-fly on Tomatos this remedy is very effective. Sulphur, and the fumes from it, are very inflammable in nature, and a continual watch must be kept by a person standing outside the house. Practice taught me how to minimise the danger by regulating the height of the wick and quantity of sulphur, for preventing the flame spreading beyond the bottom, to the side of tin containing sulphur, merely allowing the sulphur to boil about 3 inches of space across the centre of tin. Should the sulphur get alight, it must be quickly extinguished, the wick lowered, and subsequently re-lighted. As I have said, I used Richards' large size lamps, a little more than half filled with methylated spirit, with the wick set about ¼ inch above the tube, and ½ pint of sulphur in each tin. I used two sizes of baking-tins, and one 6 inches across the top, 5 inches at bottom, and 2 inches deep, answered the better. The quantity of spirit and the wick, regulated as described, burns about two hours. In the future, if I increase the strength for any purpose, I shall do this by increasing the duration of the fuming, by replacing the burned-out lamps with others retimmed, rather than by increasing the number of lamps. In addition to the usual winter cleaning of my vineries, while the Vines are at rest, I intend to fume them. Fuming with sulphur is but another phrase for boiling it, or causing it to throw off gas in the form of vapour. This vapour fills the atmosphere and condenses on all surfaces, therefore it reaches all insects. The morning following fuming small crystals are visible on the surface of Vine leaves, and there is a film on the surface of the water in tanks. During the thirty-eight years I have lived in gardens, most of the methods of applying sulphur for the destruction of red-spider have come under my notice, I consider none is nearly so efficacious as the system I have described. It is inexpensive, easily effected, but needs continual oversight to prevent the sulphur flaming. Ventilation should be afforded a vinery, or any other house, very early in the morning after fuming. I believe the fuming system will become generally adopted in gardens where red-spider attacks Vines, and good clean Grapes are required. *George Norman, Hatfield Gardens, Herts.* [It requires the most careful management, or the consequences may be serious. Ed.]

VARIATIONS PRODUCED BY GRAFTING, AND THEIR INHERITANCE.

ALLUSION has already been made in these columns to Monsieur Lucien Daniel's contributions upon the subject of grafting. The paper embodying the whole of his researches is, however, worthy of the more detailed consideration which we may now give to it.

Grafting, says Monsieur Daniel, has long been compared with the making of a cutting, and in so much as in both processes a shoot is caused to grow independently of the plant which produced it, the two are alike, but here the similarity ends. There can be no tendencies towards variation capable of manifesting themselves in the cutting which did not previously exist in the individual from which it was taken. On the contrary, in grafting, the author points out, there are many incitements to variation acting and re-acting upon scion and stock, in the shape of the altered circumstances in which both find themselves. Among these are changes in the amount and nature of the crude sap supplied to the scion by the stock, and of the elaborated food given in return, as well as the fact that either component of the new plant may begin or relinquish active growth independently of the other.

Furthermore it is argued, under such conditions of growth, the actual living matter of the plants is likely to be modified, and should this change be admitted, there arises a number of questions of no less importance to the horticulturist and agriculturist than to the scientific worker.

The problems to be solved deal with the extent of such variation as is due to grafting. Does this, it must be asked, show itself on the surface? Are both, or is only one of the plants, affected? and are the modifications only such as would occur if normal plants were subjected to changes of nutrition in the ordinary course of events?

Again, are varietal or specific characters altered? If so, does the modification touch them permanently or for a time only, individually or collectively? Lastly, are only the bodies of the plants concerned, or are the pollen-grains and egg-cells acted upon, and will the new characters in the latter case be hereditary? The answering of these questions would appear to be simplicity itself, but unfortunately, it involves the exceedingly vexed question as to whether features acquired during the lifetime of an individual can be transmitted to its offspring, and we are brought face to face with a great diversity of opinion among practical men, botanists, and particularly philosophic naturalists.

For instance, some practical workers still regard grafting as belonging to the realms of the marvellous, believing, with the ancient classical writers, that all species can be radically changed at will. In this case some special influence must constantly be at work, and must make itself felt in a very important degree. Baltet says that grafting is federation in which both parties retain their own government.

E. A. Carrière and André consider graft hybrids to be an impossibility; but leaving practical men, Van Tieghem, summing up current opinion, says that grafting is a valuable method of fixing and preserving congenital variations, seeing that by this means further variation is prevented. Dr. Vöchting goes further, and relegates all the facts hitherto recorded on the influence of stock on scion, or scion on stock, to the category of old wives' tales, saying that no such special effect has been demonstrated. M. Daniel concludes this series of opinions by adding that Weismann holds all transmissible variations to have a sexual origin, a belief which Bailey does not agree with, basing his contention upon bud variations, while others from the animal side have come to similar conclusions.

It is allowed in the paper under consideration that those who join the swelling ranks of Weismann's followers have just cause in refusing to

* *Annales des Sciences Naturelles Botany*. Series 8, vol. viii. (1898), pp. 1-226, pls. l.-x.

acknowledge the experiments advanced against their theory, for these are not by any means precise. Any further evidence, M. Daniel says rightly, must not be open to similar criticism, and the experiments upon the subject which he has been conducting since 1890 have been strictly comparative. He has always planted side by side with his grafts, in like conditions as to soil, climate, and so on, other "control" plants of the same varieties as the stock and scion. In this way variations due to external environment should be easily determined, and consequently those directly due to grafting.

After the point, that one positive fact may at once get rid of a mass of negative evidence has been emphasised, M. Daniel proceeds to discuss his results under a number of headings and detailed sub-headings.

Variations in the plants themselves may be due either to altered nutrition or to a mixing of the

of the control plants. The graft swelling was marked, the number of leaves small, and their colour pale like that of Haricots grown in a dry or badly-manured soil. In others, where secondary tissues play an important part, the normal size was attained. Cabbages grafted upon themselves grew as big as usual, and the graft swelling practically disappeared. This happened when stock and scion, or even the former alone, were vigorous, but when the stock was weak and the scion strong, the graft made but slow progress.

The results obtained by grafting plants of the same race, and of different races, species, or genera, are next described. The case of a free-growing Haricot Bean as scion, and a dwarf one as stock, has a special practical interest, for a well-branched plant of 6 or 7 feet in height, such as was obtained, is much more suitable for a garden than a straggling one two and a half times as big.

while ungrafted White-thorns have only a maximum diameter of 15 cents. (5 inches).

In the next place, reference is made to the grafting of species requiring a flinty soil upon those which prefer a calcareous one, and *vice versa*. The growing of Pines, which object to chalky ground, on stocks of *Pinus sylvestris*, is alluded to, as well as M. Quintan's idea of grafting the Chestnut upon the Oak, in order to give it more chance of warding off the ills that attack it when growing in a chalky soil. It is further pointed out that the various American Vines are not all suitable as stocks for French ones in every locality, and the one must be found by experiment which gives the best result with each soil and each scion.

In grafting plants that are variegated, the less the amount of chlorophyll the more difficult is it to gain success, and an attempt to use a completely etiolated branch always ends in failure. A reference to M. Daniels' first two figures will show what differences may be expected on the habit of a grafted tree, according as leading shoots growing away from the pull of gravity, or lateral branches which have lost the power, are used as scions. In the first case, the resulting Pear-tree, with erect branches, is a marked contrast to the other, where the boughs may rise, but little or ever droop.

Lastly, under this heading, the subject of grafting fruit branches on principal branches is broached, and this was done in the experiments, not only when the parts to be improved upon were woody branches as is customary in practice, but when these were young scions.

§ 2. *Variations produced in the form, chemical constitution, and flavour of edible parts of grafted plants.*—Experiments in grafting Cabbages are described at some length. In some kinds the leaves became more brittle; in others, the flavour was made less bitter and pleasanter to the taste. Generally speaking, vegetative parts showed a diminution in size, and in practice it would be necessary to secure an improvement in quality to counterbalance this.

Coming to reproductive parts, it was found that the grafting of the Cauliflower on the Cabbage cannot be used for the direct improvement of the former, as the flower-bearing branches lengthen. On the other hand, the round, yellow Tomato grafted on the large and early red variety produced fruit half as large again as those of the control plants. This is of special practical interest, as the yellow fruit is excellent but small. In a second case also the same result was obtained. Carrot fruits produced by the wild variety grafted on the cultivated one in the absence of any pollen of the latter, were almost double the size of those of the control plants. No general rule can be laid down with regard to herbaceous plants in this respect, but it is pointed out that the perfection of the graft union, and the amount of sap reaching the scion, is as of much importance as in the case of woody plants.

(To be continued.)

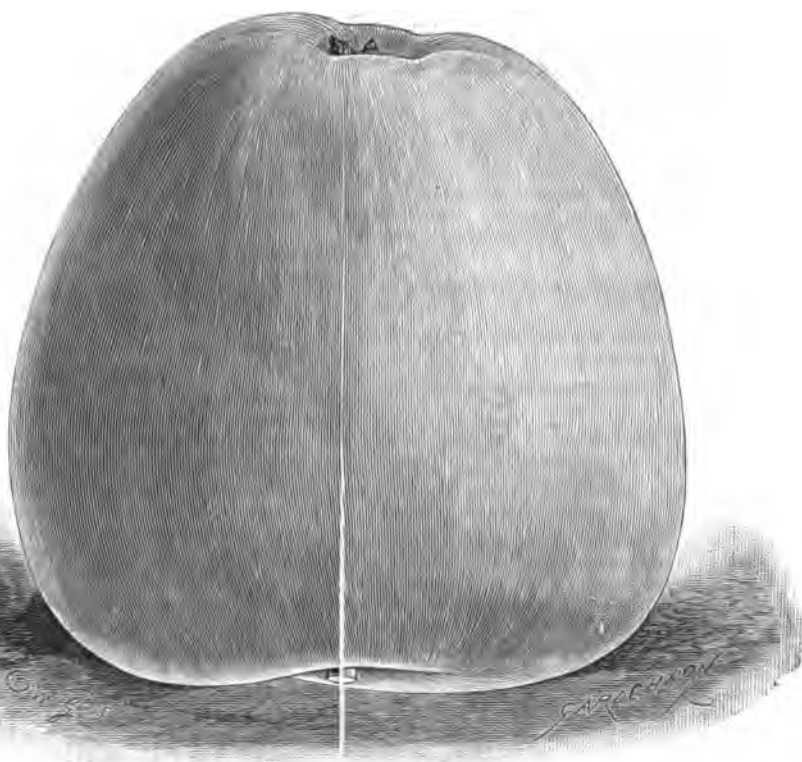


FIG. 4.—APPLE STANWAY SEEDLING.

(Given an Award of Merit at a meeting of the Royal Horticultural Society on December 19.)

characters of the two grafted individuals, but it is by no means easy in every case to separate one series from the other.

In considering variations due to nutrition, M. Daniel first gives an account of what takes place before looking for a further explanation. Four main divisions are made which it will be advisable to consider separately:—

§ 1. *Changes in the size of Scion and Stock.*—The dwarfing effects of grafting are, of course, noticeable in very many plants. Others attain their usual size, while this may even be exceeded in rare cases, where greater vigour is the result. To show that stunting is merely due to the difficulties put into the way of successful growth by the swollen tissues at the graft junction, plants were grafted on themselves, and so any chances of difference that might be looked for in two individual plants, even of the same race, were eliminated. Herbaceous plants, such as the Haricot Bean, which have but little secondary wood, when grafted upon themselves, reached only half the size

The age of the stock has a bearing on the success of herbaceous grafting, for a Lettuce scion, say has no power to get nourishment from the "ripened" branch of a Salsafy; it cannot render the reserve food in the stock available, and so perishes. On the other hand, when the Salsafy branch is at the period of maximum absorption, a junction may be successfully made with the Lettuce.

In grafting woody plants upon themselves, the effects of the swollen union are at first the same as in herbaceous ones. These wear off in time; and so the prevalent idea may have arisen that the grafting of a plant upon itself never gives rise to varieties. It may be interesting to note the cases given where grafting causes abnormal vigour. This happens when a shoot of the Silver Lime is inserted into the common species. Grafts of a Service-tree on White-thorn in the public garden at Château Gontier were made about 1840. One specimen arising from a single scion has attained a diameter of 30 centimetres (10 inches), another from two scions, that of 40 cents. (15 inches):

APPLE STANWAY SEEDLING.

NOTWITHSTANDING the long list of good Apples already possessed, a considerable number of dessert and culinary varieties have been given during the last few months Awards of Merit by the Fruit and Vegetable Committee of the Royal Horticultural Society. Each of these has, no doubt, some recommendation for a place among first-class varieties, or the Committee would not be likely to grant these distinguishing awards. The latest to satisfy the Committee was Stanway Seedling, shown in fig. 4. It is a good kitchen fruit, of moderate size, and its usual form may be seen from our illustration. Its colour is yellow throughout. Eye closed, or nearly so, and inserted in a moderately deep basin, slightly ribbed. The stem is short, set in a green and russet-lined cavity, with a swelling upon one side. The fruits shown before the Royal Horticultural Society were from Mr. T. H. Kettle, King's Ford, Colchester.

LAW NOTES.

COMPENSATION FOR CROPS.
INTERESTING TO ALLOTMENT HOLDERS.

A CASE of great interest to holders of gardens and allotments came before Mr. A. H. Smee at the Croydon County Bench on Thursday, December 21. It was a claim under the Allotments and Cottage Gardens Act, 1887, for compensation for crops, the Act providing that where a tenant should be given notice to leave his land he should be paid by the landlord for the value of the crop then on the land, or for the labour expended and manure used in preparation for a future crop. This appeared to be the first case taken under this particular Act, and it came before the Bench by reason of the fact that the parties were unable to agree to a settlement or to the appointment of an arbitrator. In such a case the Act provides that the magistrates shall appoint an arbitrator, and in this instance the Bench appointed Mr. A. H. Smee.

Mr. A. H. Smee duly held his enquiry into the circumstances of the case.

Prior to the case being opened, Mr. Smee said he had been appointed as arbitrator by the magistrates. He did not himself know any precedent for these proceedings, and he should be glad if the solicitors on either side could refer him in their experience to cases similar to this. To his mind it was very unfortunate that this application had not been made earlier, for at the present time they all knew that the crops would have ceased to exist, or had been considerably reduced in value by frost and other things. What he proposed to do, and what he hoped would meet with the approval of the solicitors, was to take item by item and see the amount of good that had been under different specific cultivation. It seemed to him, looking at the Act, that he had to value the crops not as on a particular day, but as to the value when they would come to maturity. He would like to bring it to their notice that in connection with some allotment ground he had sold to the Rural District Council it was found necessary by the requirements of the Allotments Act that the tenant should be given notice to clear, and six months notice was given. He had made it a practice to look round the allotments in the district every year, between July 1 and August Bank Holiday, and from his experience as a horticulturist, he was able to judge of the state of the crops in the district, and he thought it would be a fair thing if he considered this claim on the basis of the average crops, unless the plaintiff could on the one side prove to him that his crops were superior to the average, or unless the defendant could prove that they were inferior.

Mr. NEWNHAM said that as far as his experience went, he could not refer the arbitrator to a previous case. In his view the crops should be valued as on the date of the determination of the tenancy as between the incoming and the outgoing tenant. As to Mr. Smee giving six months' notice to his tenants, that was more a matter of convenience, as it was not compulsory according to the Act.

Mr. STOKES, the solicitor for the other side, said that it was necessary to take the value of the crops at the termination of the tenancy, and not what the crops might become.

The arbitrator said he considered it important as establishing a principle. He took it that the Act meant that the man should have full market value of the crop.

After further discussion, Mr. NEWNHAM, for the claimant, said that Mr. JAMES COOPER, the plaintiff, had been a weekly tenant to Mr. CHANDLER, of Croydon, of about three-quarters of an acre of land in Pound Street, Croydon. The land had originally belonged to Mr. Cooper as his freehold until March 15 in this year. He then sold it to Mr. Chandler, and an agreement was entered into between the parties by which Mr. Cooper became the tenant at a rental of 2s. a week, and this tenancy Mr. Chandler determined with a week's notice, which ended July 4.

The clerk (Mr. STAYNER) pointed out that it was unusual to have gardens or allotments at a weekly tenancy.

Mr. NEWNHAM—Defendant gave a week's notice, and turned the plaintiff out at once. He allowed him no more time.

THE ARBITRATOR—I cannot understand why it should be considered as a weekly tenancy when a man enters into a series of operations for the cultivation of land; he should not be expected to give up at any moment.

Mr. NEWNHAM—Having given a week's notice, the landlord excluded the tenant from the ground and let it to someone else. He was not allowed to return to it.

THE ARBITRATOR—I think I have to determine what the compensation should be for turning a man out in the most busy time of the year, when he would be particularly occupied in the garden.

After some further discussion of technical matters, the Arbitrator suggested that, as it was likely to be a troublesome case, the parties should try to settle the matter among themselves without going further into the matter.

A short adjournment was made, but no agreement being arrived at, the case proceeded.

Mr. COOPER then gave evidence in great detail as to the nature of the crops, the variety of plants, seeds, bushes, trees, &c., the amount of land occupied by each, and the price he expected they would have fetched.

Cross-examined—He denied that he was told when he left the garden and the house adjoining that he could take the crops off, and that he said he was going to get £210 or £200 out of Mr. Chandler.

FRED SMITH, a nurseryman, of Carehalton Road, gave expert evidence of the value of the crops, bearing out the statement of claimant.

THOMAS EVANS also gave evidence as to the value of the crops.

The present occupier of the land, a Mr. HALL, gave evidence for the other side. His evidence was to the effect that almost everything was a most utter failure. He admitted, in answer to Mr. NEWNHAM, that he never gave the ground any attention.

After the failure of another attempt to get the parties to come to an agreement,

THOMAS FREEMAN, a coachbuilder, gave evidence for Mr. Chandler, stating that he had bought fruit from the former occupier. He put the value of the crop lower than claimant, and said this year's was a poor one.

THE ARBITRATOR said that when he had particulars of the claim he took them home and went through them carefully and put down an amount which he thought was right. The only result of the inquiry would be to make him increase that sum by £1 perhaps. He had gone into this case most carefully, for the reasons he had given. He had spent a considerable time in horticultural pursuits, and he had endeavoured, as far as possible, feeling the great difficulty there was in estimating the value of crops which had perished, and crops that had not been gathered and turned into money, to arrive at an award which would be satisfactory to both. The sum he proposed was £16 10s., each side paying their own costs. The money was at once paid. Condensed from the Croydon Advertiser.

COLONIAL NOTES.

NOVA SCOTIA.

At the annual meeting of the Nova Scotia Fruit Growers' Association to be held from Jan. 27 to 31 inclusive, it is proposed to hold a representative exhibition of Apples, Pears, Quinces, Cranberries, &c. It is expected that the exhibition will be one of great excellence, although no money prizes will be offered. All fruit must be shown by the actual grower, and the fruit must be correctly named on labels 1 x 2½ in., secured to the plates, and type-writing is preferred.

SOCIETIES.

ROYAL DUBLIN.

DECEMBER 27.—Professor Johnson, F.L.S., gave a paper on the above date on some common food-plants. Speaking of the Potato, the Professor said that, though eaten in great quantities it was not a perfect food, chiefly due to the small quantities of nitrogen contained therein. The Sugar-Beet industry was referred to at some length. It was pointed out that its successful growing requires a high summer temperature, and that a recent crop of the Sugar-Beet raised in England was better, and the yield was more prolific than the German produce, of which we annually import something like £5,000,000 worth. This showed how the Germans had taken advantage of chemical and botanical help, and made it a national industry. The lecturer thought the incoming Board of Agriculture could do a very useful and necessary work by protecting the public against such adulterations as are now prevalent, and thereby secure for them wholesome food.

The lecture was illustrated by plants from the Botanic Gardens, Glasnevin; and the foods were represented by dried specimens from the herbarium attached to the Dublin Museum. On the following Thursday, Prof. Johnson spoke about some of the enemies of food-plants. The lecturer alluded to the results of experiments carried out in Trinidad on the Sugar-cane, and new varieties raised by seed selection, have been found free from disease, and yielded on the average 25 per cent. more Sugar than formerly, when cuttings were usually taken from the exhausted canes. Prof. Johnson stated the losses caused by rust in the United States is £8,000,000, and to Oat-smut alone £4,000,000. Unfortunately, in Great Britain there is no official reports as to such losses. He advised that experimental stations be erected throughout the country; by that means, science would be enabled to remove prevailing prejudices. A very effective series of slides illustrative of the several diseases were shown, which largely helped the audience to follow the lecture.

NATIONAL CARNATION & PICOTEE.

On the occasion of the last annual meeting of the above Society in December, some important additions were made to the schedule of prizes to be offered for competition at the usual exhibition to be held on July 25 next, this fixture being subject to alteration according as the incidence of the season may determine. These additions raise the aggregate sum offered in cash to £300, and four Silver Cups are offered instead of three, as last year.

In the first or open division, the class for twelve Picotee blooms, yellow grounds, has been raised to twenty-four blooms in twelve varieties, this section of Carnations having received so many valuable additions during the past few years. In the same division, the class for six blooms of any variety of fancy Carnations, the flowers are now restricted to yellow or buff grounds; and a new class is provided for a similar stand of other than yellow or buff grounds. In the second division, the class for six yellow-ground Picotees is extended to twelve blooms in six dissimilar varieties; and four new classes are added, viz., for six blooms of any variety of self Carnations, six blooms of any yellow or buff-ground fancy, the same number of blooms of any fancy Carnations other than yellow or buff, and for six blooms of any variety of yellow-ground Picotee. In the third division a class for four yellow-ground Picotees is made into six blooms dissimilar; the class for three blooms of fancy Carnations, one variety, is now made to read yellow and buff grounds; and a new class is added for three blooms of one variety other than yellow and buff.

In the classes for undressed blooms, that for twelve distinct varieties of Carnations, selfs, and fancies, three blooms of each, shown in bottles, is confined to competition in the first division; that for six varieties to the second division; and that for three blooms to the third division. The fourth Silver Cup is given for competition in five classes of undressed blooms; and in divisions one, two, and three, where Silver Cups are also awarded, the winning of such Cups is decided by the aggregate number of points secured in each division. In all classes down to and including twelve dressed blooms, a 1st prize is awarded twelve points, a 2nd eight, and a 3rd four. Six points are allowed for a 1st prize for six blooms, four for a 2nd, and two for a 3rd. Every premier bloom in divisions one and two carries four points; in the classes for single blooms a 1st prize carries three points, a 2nd two, and a 3rd one. In the third division, for the growers of small collections, twelve, eight, and four points are severally awarded to 1st, 2nd, and 3rd prizes; eight, five, and three, to six blooms; and six, four, and two, for two blooms.

It will thus be seen there have been considerable additions to the schedule of prizes; and, while it would appear that the Northern Section of the Society can barely pay its way, that in the south can boast of something like affluence; but it should be stated the flourishing financial condition is greatly owing to the warm interest taken in the Society by its President, Mr. Martin R. Smith, and his great liberality. R. D.

IPSWICH AND EAST OF ENGLAND
HORTICULTURAL.

DECEMBER 28.—The annual meeting was held on the above date at the Town Hall, Ipswich.

The financial report was freely criticised, and several members were of the opinion that the committee had spent more money during the year than they were justified in doing, the reserve fund having been reduced by nearly one-half. Mr. W. E. Close proposed to increase the usefulness of the society by the organisation of twelve meetings during the winter months for lectures and debates upon horticultural subjects. This very wise proposition is to be considered at a general meeting of the committee. A horticultural society's work should not begin and end with the holding of exhibitions.

Capt. Pretyman was re-elected President; and Mr. H. E. Archer as Secretary.

MISCELLANEOUS SOCIETIES.

Reading and District Gardeners'.—The annual general meeting was held on Monday, the 1st inst., and was well attended. The President, C. B. Stevens, Esq., occupying the chair. Before the usual business was commenced, the President announced the judges' awards in connection with the Essays arranged during 1899. They were as follows:—"The Planting of a Garden with Fruit Trees and Bushes," open to all, 1st (80s.), Mr. G. HINTON, The Gardens, Walmer, Reading; 2nd (20s.), Mr. E. TROLOPE, The Gardens, Coombe Lodge, Whiteburch; 3rd (10s.), Mr. C. P. CRETCHLEY, The Gardens, The Honeys, Twyford. "Plants suitable for Table or Room Decoration, and their Culture," open to assistant gardeners only, 1st, Mr. J. BORTLEY, The Gardens, Blythwood, Maidenhead; 2nd (20s.), Mr. C. TOWNSEND, Whiteknights Gardens, Reading; 3rd, Mr. T. PEMBROKE, Greenlands Gardens, Reading. The annual report and balance sheet was read by the secretary, and was of a very encouraging character, showing that the Association was in a very prosperous condition. The election of officers for the ensuing year was then proceeded with. C. B. Stevens, Esq., was unanimously re-elected President (fourth year), and Mr. H. G. Cox, Fernies, Junction Road, Reading, was re-elected Hon. Secretary. A feature of the meeting was a display of Primulas from Mr. Townsend, The Gardens, Sandhurst Lodge, showing some splendidly-flowered plants of *P. obconica* rose; Mr. F. Lever, The Gardens, Hilsdale, showed some well grown *P. sinensis* in small pots, as well as some good plants of *Lachenalia pendula*.

PRESENTATION TO MR. HERRIN.—Our valued correspondent, Mr. C. HERRIN, whose retirement from the position of gardener at Dropmore, Maidenhead, has been previously announced in these pages, was presented on the 29th ult. with a fourteen-day Timepiece. This was given on behalf of the employees in Dropmore Gardens, all of whom entertain very great respect for their chief.

FAMOUS AMERICAN TREES.—Some interesting facts are given by a New York correspondent respecting famous American trees. The writer says that probably the choicest tree in any of the city parks is the Cedar of Lebanon in Prospect Park. It stands on the meadow north-east of Lookout Hill. The height, about 40 feet, is remarkable for this country, and it would be no mean comparison to some of the famous ones at Kew. It is claimed that there is only one fine Cedar of Lebanon in the United States. It is on C. P. Huntingdon's estate at Westchester, and is about 60 feet high. These trees are most attractive in the early summer, when the old and new cones hang pendent (?) together.

THE PADUA BOTANIC GARDEN.—A correspondent in the *Botanical Gazette* writes that the Botanical Gardens at Padua, Italy, are rich in interesting plants. Classic plants are a *Chamaerops humilis*, L., var. *arborescens*, 9.5 metres high, planted about 1585, and visited September 27, 1796, by Goethe, wherefore it is known as "Goethe's Palm-tree;" a *Tecoma grandiflora*, Del., admired by Goethe for its beautiful flowering; a very old *Vitex Agnus-castus*, L. (about 345 years old); an *Araucaria excelsa*, R. Br., 20 metres high, kept in a special greenhouse; many very beautiful trees (*Gymnocladus canadensis*, Lam., *Giukgo biloba*, L., *Diospyros Lotus*, L., *Carya oliviformis*, Nutt., &c.). The greenhouses also are furnished with beautiful plants, among them an *Astrocaryon Chonta*, Mart., a *Cycas circinalis*, L., a *Cycas revoluta*, Thunb., a *Pandanus utilis*, Bory, a *Livistona australis*, R. Br., many *Cactaceae* and *Orchideae*. More than 5700 plants are cultivated in pots, to which we must add 110 old trees in the open air, 412 younger trees and shrubs, and 26 old greenhouse trees.

WINTER-GRAFTING.—Mr. A. IDE, in the last number of the *Tijdschrift voor Tuinbouw*, remarks that while formerly spring was thought to be the only period of the year at which grafting could be advantageously practised, now it is found that most plants, even fruit trees, may be grafted in winter. The advantage is, that the work may be done at seasons when work is slack in the nurseries. In Holland, English grafting is practised, or inarching. In Germany, saddle-grafting. The *Tijdschrift* has, in this instance, adopted the excellent plan of giving a *résumé* in French, a plan we should be glad to see exclusively followed out in Dutch horticultural periodicals, as it already is in scientific journals.

INDIAN AZALEAS.—In some of the Ghent establishments as many as 100,000 plants are grafted each year. As soon as union is effected the plants are placed in frames in the open air. In the middle of May they are lifted from the frame and planted in dried leaves. Leaf-mould is not so advantageous. Weak liquid-manure judiciously used is beneficial. An illustration in the January number of the *Revue de l'Horticulture Belge* shows a plantation of Indian Azaleas in the open air in the nurseries of M. ED. PYNART.

Obituary.

ANDREW GREIG.—This well-known Scotsman, who died on December 7, was for twenty-eight years head of the nursery department of Messrs. Little & Ballantyne's business at Carlisle. He was a native of Aberdeenshire, and was brought up to gardening and forestry, first in Edinburgh, afterwards in the Perth nurseries. Upon leaving Perth, Mr. Greig was for some time in Leicester-shire, then at Annan, and subsequently with Messrs. John Stewart & Sons, Broughty Ferry, from whom he came to Knowelfield twenty-eight years ago. Deceased's practical knowledge of horticulture was extensive. Deceased is survived by his widow and two sons and a daughter.



METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period December 24 to December 30, 1899. Height above sea-level 24 feet.

1899.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				TEMPERATURE OF THE SOIL AT 9 A.M.			
		AT 9 A.M.		DAY.	NIGHT.	RAINFALL.		At 1-foot deep.	At 2-feet deep.
		Dry Bulb.	Wet Bulb.			At 1-foot deep.	At 2-feet deep.		
SUN. 24	N.N.W.	41°	40°	45°	31°	0.08	38°	41°	45°
MON. 25	N.W.	36°	35°	42°	30°	0.08	38°	41°	45°
TUE. 26	S.W.	38°	37°	41°	33°	0.05	37°	41°	45°
WED. 27	N.W.	28°	27°	34°	27°	0.05	37°	41°	45°
THU. 28	E.	33°	34°	49°	26°	0.17	36°	40°	45°
FRI. 29	S.E.	49°	45°	50°	34°	0.20	38°	40°	44°
SAT. 30	S.W.	45°	40°	47°	43°	0.05	40°	41°	44°
MEANS...		39°	37°	44°	33°	0.48	38°	41°	45°

Remarks.—A week of intermittent frost and rain, with brief spells of bright sunshine. There was a gale on the 29th ult.

THE WEEK ENDING DECEMBER 23.

The following summary record of the weather throughout the British Islands, for the week ending December 23, is furnished from the Meteorological Office:—

"The weather during this period was very dull and gloomy in all parts of the Kingdom. Slight rain and fog were frequently experienced in the south and south-east, and cold rain or sleet in the north. Over the south and west of Ireland rain fell daily, and was at times very heavy.

"The temperature was a few degrees below the mean generally, but slightly above it in 'Scotland, N.' and over Ireland. The highest of the maxima occurred at the end of the week over England, but some days earlier in Ireland and Scotland; they ranged from 56° in the 'Channel Islands' 53° in 'Ireland, S.', and 50° in 'England, S.W.' and 'Scotland, N.', to 45° in 'Scotland, E.' and 42° in 'England, E.' The lowest of the minima, which were recorded during the early days of the week, varied from 19° in 'Scotland, E.' and 'England, N.E.', and 22° in 'Scotland, N.' and 'England, S.', to 26° in 'Ireland, S.' and the 'Channel Islands.' The diurnal range was very slight generally, especially over England.

"The rainfall was less than the mean in most districts, but just equal to it in 'Scotland, E.', and more than the normal in 'England, N.E.' and over Ireland. In 'Ireland, S.' the excess was very large.

"The bright sunshine was very deficient everywhere, and in some of the northern districts was altogether absent."

THE WEEK ENDING DECEMBER 30.

"The weather during this period was very unsettled generally, with much rain in the more southern districts, and rain, sleet, or snow in the north. A few fine, clear intervals occurred, however, in most places. Thunder and lightning were experienced in the north of Scotland on Wednesday, and on our south-west coasts on Thursday.

"The temperature was below the mean in nearly all districts, but just equalled it in 'England, S.W.', and was rather above it in 'England, S.' and the 'Channel Islands.' Over Ireland the deficit amounted to 4°, and in Scotland to 4° or 5°. The highest of the maxima were recorded either at the commencement or towards the end of the period, and ranged from 53° in the 'Channel Islands,' and from 51° or 50° in several English districts, to 45° in 'Scotland, N.' and 'England, N.E.' About the middle part of the week the daily maxima were below 32° over the inland parts of Great Britain, the lowest being 26° at Stonyhurst. The absolute minima, which were registered on the 27th or 28th, ranged from 12° in 'Scotland, E. and W.', 18° in 'England, N.W.', 15° in 'Scotland, N.', and 17° in 'Ireland, N.', to 22° in 'Ireland, S.' and 37° in the 'Channel Islands.'

"The rainfall was more than the mean in all districts except 'England, E.', the excess over Ireland and most parts of England being large.

"The bright sunshine exceeded the mean generally. The percentage of the possible duration ranged from 39 in 'England, N.E.', and 27 in 'England, E.' and 'Ireland, S.', to 13 in 'Scotland, E.' and 8 in 'Scotland, N.'"

MARKETS.

COVENT GARDEN, JANUARY 4.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

OUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Arum Lilies, dozen blooms ... 14 0-18 0	Narcissus (yellow) doz. bunches ... 6 0-8 0
Asparagus "Fern," bunch ... 2 0 2 6	— (double) dz. bch. ... 8 0-7 0
Carnations, per doz. blooms ... 2 6-5 0	— (white) doz. ... 8 0-4 0
Cattleyas, per dozen ... 15 0-18 0	Odonoglossums, per dozen ... 4 6-9 6
Eucharis, per dozen ... 8 0-10 0	Poinsettias, dozen blooms ... 15 0-18 0
Gardenias, per doz. ... 3 0-6 0	Roman Hyacinths, doz. bunches ... 9 0-12 0
Lilac, white, bunch ... 5 0-7 0	Roses indoor, per dozen ... 3 6-7 6
Lilium Harrisii, per dozen blooms ... 10 0-14 0	— Tea, white, per dozen ... 3 6-7 6
Lilium longiflorum, per dozen ... 12 0-16 0	— Yellow, Perles, per doz. ... 3 6-7 6
— lancifolium album, per dozen ... 6 0-4 0	— Safrano, per doz. ... 2 6-3 6
— lancifolium rubrum, per doz. ... 3 0-4 0	Smilax, per bunch ... 8 0-6 0
Lily of Valley, per doz. bunches ... 12 0-24 0	Tuberose, per doz. blooms ... 0 2-1 0
Maidenhair Fern, per doz. bunches ... 4 0-6 0	Tulips, per bunch ... 1 3-2 0
Marguerites, p. doz. bunches ... 3 0-4 0	Violets, Parma, per bunch ... 8 0-12 0
Mignonette, dozen bunches ... 4 0-6 0	— dark (French), per doz. bchs. ... 2 6-4 6
	— (English), per doz. bchs. ... 4 0-5 0

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Adiantum, p. doz. ... 5 0-7 0	Foliage plants, var., each ... 1 0-5 0
Arbor-vitæ, var. doz. ... 6 0-36 0	Lily of Valley, each ... 1 2-3 0
Aspidistræ, p. doz. ... 18 0-36 0	Lycopodium, doz. ... 8 0-4 0
— specimen, each ... 5 0-10 6	Marguerite Daisy, per dozen ... 8 0-12 0
Oreoceras, per doz. ... 18 0-30 0	Myrtles, per dozen ... 6 0-9 0
Dracenas, var. doz. ... 12 0-30 0	Palms, various, ea. ... 1 0-15 0
— viridis, per doz. ... 9 0-18 0	— specimen, each ... 21 0-63 0
Ericas, var. per doz. ... 18 0-36 0	Pelargoniums, scarlet, per dozen ... 8 0-12 0
Eucynimus, various, per dozen ... 6 0-18 0	Poinsettias, p. doz. ... 18 0-30 0
Evergreens, var., per dozen ... 4 0-18 0	Primulas, per doz. ... 5 0-8 0
Ferns, small, per 100 ... 4 0-6 0	Roman Hyacinth per doz. ... 10 0-12 0
Ferns, in variety, per dozen ... 4 0-18 0	Tulips, per doz. ... 1 6-2 6
Ficus elastica, each ... 1 6-7 6	

VEGETABLES.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe, per doz. ... 4 0 —	Mint, new, Ch. Is., p. doz. bunches ... 4 0 —
— Jerusalem, per sieve ... 1 0-1 6	Monks' head (Barbe de Capucine), p. bunch ... 0 5 —
Asparagus, Spruce, per bundle ... 0 7-0 8	Mushrooms, house, per lb. ... 0 6-0 9
— Giant, bundle, 12 0-14 0	Onions, bags ... 4 0-5 0
— Paris, Green, per bundle ... 3 0-6 0	— Bordeaux, boxes ... 3 6-4 0
Beans, Channel Islands, per lb. ... 2 0 —	— picklers, in sieves ... 2 6-3 0
— Madeira, per basket ... 2 6-3 0	— Valencia, cases ... 6 6-7 6
— French, lb. pkt. ... 0 9-1 0	— English, cwt. ... 6 0 —
Beetroots, new, doz. ... 0 8-1 0	— Albanian, bags ... 5 0 —
— in bush ... 1 3-2 0	— Dutch ... 4 6 —
Broccoli, Cornish, crates ... 9 0-12 0	Parsley, per dozen bunches ... 1 0-2 0
Brussels Sprouts, p. sieve ... 1 3-4 0	— per sieve ... 1 0-1 3
— per bushel ... 2 6-5 0	Parsnips, per dozen ... 0 6-1 0
Brussels Sprouts, Tops, per bag ... 2 0-3 0	— bag ... 8 0-3 6
Cabbage, tally ... 4 0-7 0	Pears, New Green, lb. ... 0 6-1 0
— dozen ... 1 0-1 6	Potatoes, Old vars., per ton ... 65 0-90 0
— Savoy, p. tally ... 4 0-8 0	— Dunbar Main Crop, per ton ... 100 0-110 0
Carrots, English, p. dozen bunches ... 2 0-2 6	— New Channel Islands, per lb. ... 0 5 —
— good, cwt. bags, washed ... 8 0-8 6	— New French in boxes, lb. ... 0 3 —
Cauliflowers, dozen ... 1 6-8 0	— Tenerife, in boxes, cwt. ... 9 0-14 0
— Cornish crates, 12 0-15 0	Radishes, Long, pr. doz. ... 1 0 —
— Italian, baskets of 18 ... 5 6-8 0	Rhubarb, Yorks, pr. dozen bunches ... 1 0-1 3
Celeriac, per dozen ... 1 0 —	Salad, small, punnets, per dozen ... 1 3 —
Celery, red, per roll dozen ... 10 0-18 0	Salisbury, bundle ... 0 4 —
Chicory, per lb. ... 0 6-8 0	Scotch Kale, bush ... 2 0-2 6
Colewort, p. bush ... 1 6-2 0	Seakale, per dozen punnets ... 10 0-15 0
Cress, per dozen ... 1 6 —	Shallots, per lb. ... 0 3-0 3 1/2
— punnets ... 5 0-9 0	Spinach, French, crates ... 5 0-5 6
Endive, new French, per dozen ... 2 6-3 6	Spinach, Winter, per bushel ... 5 6-6 0
— Batavian, doz. ... 8 0 —	Sweet Potatoes, lb. ... 0 3 —
Garlic, new, per lb. ... 0 2 —	Tomatoes, Canary, deeps ... 1 6-2 6
— per cwt. ... 14 0 —	Turnips, per dozen bunches ... 2 0-2 6
Horseradish, Eng. lb. bundle ... 1 6 —	— cwt. bags ... 2 0-2 6
— foreign, p. bdle ... 1 0-1 2	Turnip Tops, bags ... 2 0-2 6
— loose, fine, doz. ... 1 9 —	Watercress, p. doz. bunches ... 0 10-1 1
Leeks, per dozen bunches ... 1 6 —	
Lettuce, French, Cabbage, p. doz. ... 1 0-2 0	

FRUIT.—AVERAGE WHOLESALE PRICES.

a. d. s. d.		a. d. s. d.	
Apples, in sleeves:		Grapes, English,	
— Blenheim, beh.	5 0-6 6	— Alicante, per lb.	1 0-1 6
— Nova Scotia,		— Belgian	0 10-1 6
various, barrel	17 0-27 6	— Gros Colmar,	
— Californian,		Class A, pr. lb.	1 6-1 9
cases, New		Class B, per lb.	1 0-1 3
Town and Red.	6 0-9 6	— Muscats, Cl. A.,	
— New York, New		per lb.	1 6-3 0
Town Pippins,		— Almeida, dz. lb.	4 6-8 0
barrel	24 0-28 0	— barrel	16 6-30 0
— Cox's Orange		Lemons, Messina,	
Pippin, sieve	4 0 —	360	5 0-12 0
— Wellingtons,		— Malaga, 420	12 0 —
beh.	5 0-6 6	— Murcia, 202	11 0 —
— Southerings, per		Lyches, Chinese,	
bushel	3 0-4 0	new, pkt., 1 lb.	1 0 —
— Fearn's Pippin,		Oranges, Denia, 420	8 0-14 0
per bushel	4 0-6 0	— Jafa, case of	
— Golden Knobs,		144	11 0 —
per bushel	4 0-5 0	— Mandarin, boxes	1 0-1 6
— Various Cooking,		— Murcia, case of	
per bushel	2 6-6 0	240	9 0 —
Bananas, per bunch	6 0-10 0	— Valencia, case	8 0-10 6
Chestnuts, per bag	6 0-10 0	Pears, half cases	10 0-12 6
— in sacks, Spanish	13 0-15 0	— Californian Easter	
Cobnuts, per lb.	0 7-0 7 1/2	Beurre	17 6-25 0
Cranberries, case	6 0-7 0	Pines, each	1 6-3 0
— American, per		Sapocals Nuts, lb.	1 0 —
qt.	0 5 —	Walnuts, Naples,	
— Kaga (Russian).	2 0 —	kill-dried, per	
Custard Apples, dz.	6 0-8	bush.	20 0 —

POTATOES.

Main Crop, &c., 70s. to 90s.; Dunbar Up-to-Date, 100s.; Dunbar Main Crop, 110s. Other varieties, 65s. to 85s. John Bath, 82 & 84, Wellington Street.

REMARKS.—Since last report there has been a great advance in the price of Brussels Sprouts, Broccoli, and Spinach, but prices have fallen again a little. Mushrooms and Seakale are cheaper. In addition to other varieties of Onions, there are now some from Bordeaux in boxes. The bulbs are of high colour, have thin skins, are tender and mild. They are not so popular as the Valencia, and are small in comparison.

FRUIT AND VEGETABLES.

GLASGOW: January 3. — The following are the prices since our last: — Apples, Canadian, Kings, 26s. to 30s. per barrel; Baldwin, 19s. to 22s. do.; Northern Spy, 18s. to 22s. do.; Greening, 18s. to 22s. do.; Spitz, Seeks, Ben Davies, Waggoners, 16s. to 20s. do.; Calverts, Holland Pippins, 12s. to 16s. do.; American, Baldwin, 16s. to 18s. do.; Northern Spy, 16s. to 18s. do.; various sorts, 14s. to 17s. do.; Grapes, English, 1s. to 2s. 6d. per lb.; foreign, Almeida, 12s. to 16s. per barrel; best, 30s. to 25s. do.; Bananas, extras, 12s. to 14s. per bunch; No. 1, 10s. to 12s. do.; No. 2, 8s. to 10s. do.; others as low as 2s. do.; Oranges, Murcian, 7s. 6d. to 8s. 6d. per half case; 11s. to 14s. per case; Valencia, ordinary, 420's, 7s. to 10s. per box; large, 11s. to 12s. do.; extra large, 14s. to 16s. do.; Jumbos, 15s. to 18s. do.; large and extra large, 714's, 11s. to 14s. do.; Lemons, Palermo, 10s. to 12s. per case, and 7s. to 8s. per box; Pears, Californian, Easter Beurre, 18s. to 21s. per box; Newtown Pippins, 9s. to 12s. do.; Mushrooms, 1s. 6d. to 1s. 9d. per lb.; Tomatos, Tensiffe, deeps, 12 lb. to 16 lb., 2s. to 3s.; Onions, English, 6s. to 7s. per cwt.; do, Valencias, 5 in a row, 7s. 6d. per case; do., 4 in a row, 6s. to 7s. do.; Turnips, 6d. to 8d. per dozen bunches; Swedes, 1s. 6d. to 1s. 8d. per cwt.; Parsley, 6d. to 9d. per dozen bunches; Cabbages, 8d. to 1s. 4d. per dozen; Celery, 8d. to 1s. 6d. roll.

LIVERPOOL: January 3. Wholesale Vegetable Market.—Potatoes, per cwt., Lynn Greys, 3s. 4d. to 3s. 6d.; Main Crop, 3s. 9d. to 4s. 3d.; Bruce, 3s. 4d. to 3s. 10d.; Champions, 3s. 4d. to 3s. 8d.; Turnips, 6d. to 10d. per dozen bunches; Swedes, 1s. 6d. to 1s. 9d. per cwt.; Carrots, 3s. 6d. to 4s. do.; Parsley, 6d. to 8d. per dozen bunches; Onions, English, 6s. to 7s. per cwt.; foreign, 8s. 9d. to 4s. do.; Cabbages, 8d. to 1s. 6d. do. St. John's.—Potatoes, 1s. per peck; Grapes, English, 2s. 6d. per lb.; foreign, 8d. to 10d. do.; Pines, English, 5s. each; Cobnuts, 10d. per lb.; Cucumbers, 1s. 6d. each; Mushrooms, 1s. per lb. and basket. Birkenhead.—Potatoes, 10d. per peck; Filberts, 10d. per lb.; Grapes, English, 1s. 6d. to 3s. 6d. do.; foreign, 4d. to 8d. do.; Pines, English, 4s. to 8s. each; Mushrooms, 1s. to 1s. 6d. per lb.

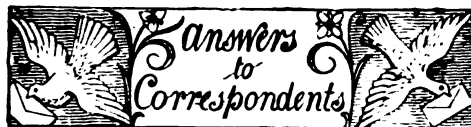
CORN.

AVERAGE PRICES of British Corn (per Imperial qr.), for the week ending December 30, and for the corresponding period of 1898, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1898.		1899.		Difference.
	s. d.	s. d.	s. d.	s. d.	
Wheat	26	11	25	9	- 1 2
Barley	28	4	25	5	- 2 11
Oats	17	0	16	2	- 0 10

ENQUIRY.

A HOUSE FOR LILIES AND AQUATICS.—I am building a house for delicate Water-Lilies and aquatic plants; will any of the readers of the *Gardeners' Chronicle* give me information as to the interior arrangement necessary? The dimensions of the house are 30 feet by 13 feet. M. Lockwood, Col., M.P.



ARUMS: G. A. H. The spathe is not deformed, but they appear to have been checked in their growth. Try a little increased heat, and supply water to the roots.

CARNATION SEEDLINGS: H. E. Number one, but for its stronger stem, would hardly be distinguishable from the variety Uriah Pike. Whether the seedling has any advantages must depend upon its habit. As far as can be judged from the specimens sent of the primrose-coloured seedling, this is not of great value.

CYCLAMEN: C. F. L. The grubs are those of a weevil which are very destructive. Trap them with slices of Potato or Carrot, and destroy them. By way of prevention look to the soil you use; the loam should have been stacked at least two years before using. If the amount of soil you require is not too large, you should bake it before use.

DAPHNIPHYLLUM GLAUDESCENS: B. B. This plant is best propagated by seeds, which may be easily procured from Japanese nurserymen. Stocks in this country are sometimes, however, increased by means of cuttings.

DESIGNS FOR FLOWER-BEDS: C. J. D. Apply to Messrs. H. Cannell & Sons, Swanley, Kent, who issue a pamphlet upon the subject at the price of 6d.

EEL-WORMS: E. B. It is quite evident that there is a difference of opinion as to what these are. One correspondent writes:—"I cannot understand Mr. Editor's remarks that eel-worms are only of microscopic dimensions, as I have seen many thousands of eel-worms from 6 to 8 inches in length. . . . Immediately they are unearthed and thrown upon solid ground, they begin to leap and twist about exactly like an eel." We, in a moment of weakness, adopted a popular name instead of a much-reviled scientific one, with the amusing result above shown. We were alluding to nematoid worms of the genus *Tylenchus*, which are hardly visible to the naked eye, but which effect very great destruction to many crops. We have frequently given illustrations of the creature.

NAMES OF FRUITS: A. M. 1, Cockle Pippin; 2, Golden Winter Pearmain; 3, Pine-apple Russet; 4, Dr. Harvey; 5, Norfolk Stone Pippin; 6, Cobham.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—W. T. 1, *Impatiens parviflora*, an introduced plant; 2, not wild Medlar, but a *Crataegus*, perhaps *C. coccinea*, if so, it is not an aboriginal native.—G. M. C. *Odontoglossum bictonense*.

PHALLENOPSIS BUDS FAILING: Haywood. In districts where dense fogs have prevailed, Phalænopsis buds have frequently perished in the manner shown by your specimen. *Odontoglossum* leaves are also similarly affected, the older leaves often turning black, while those on the young growths remain green. Very similar effects have also followed when the hot-water pipes have been painted or tarred. A sudden fall in the temperature, even for a short time, might cause the damage.

ROSE DISEASED: C. W. D. The twigs and leaves are attacked by a fungus, which is neither Rose-rust nor Rose-mildew. The latter is present on leaves, but is not the cause of damage to the twigs. The fungus attacks the outer tissues of young twigs, and it can be traced in older twigs inwards to the wood. This destruction of the bark produces the scabbed or scurfy appearance. The fungus has minute spores or conidia, developed free on the surface and in dark cases (pycnidia). A disease almost identical has been described by the name "Anthracnose." The treatment is severe pruning of scabbed twigs, and repeated washing down of the shrubs in winter with sulphate of iron solution (water, 50 gallons; sulphuric acid, 1 pint; iron sulphate, 25 lb.; mixed in a wooden barrel), or with Bordeaux Mixture. The summer treatment is to spray with dilute Bordeaux Mixture at fortnightly intervals after the foliage has formed.

TENNIS COURT: C. J. D. A court for the single game, that is, for two persons, is 27 feet wide and 78 feet long. The court is divided across the centre by the net. The "service lines" are parallel to the net, and 21 feet distant from the same. A court for three-handed or four-handed games should be 36 feet wide, and the same length as the smaller court, and the posts for supporting the net should be placed 3 feet beyond the sides.

VINES DISEASED: S. H. The twigs are attacked by the black-rot. The discoloured, shrunk, and cracked patches at the base of this year's growths are full of a fungus mycelium, from which on cultivation we obtained spores contained in tiny dark pustules on or near the diseased parts. A description and figures of the fungus were given in the *Gardeners' Chronicle*, January 28, 1895. In the twigs sent the fungus seems to have entered through the wounds left when the Vines were pruned back; these cut ends are so near the buds that the fungus could easily make its way from the wound to the bud. Wounds like this require to be painted with tar or creosote as soon as made; they offer a doorway to many parasitic fungi. Was the disease not present last year, either like this, or as spots on leaves or fruit? It is a deep-seated disease, not easily checked. This season, prune all diseased shoots, and remove any spotted leaves or fruits when seen; they will die in any case, so need not be left. Spraying is known to check the disease on the Grapes. The solution is prepared by mixing 5 oz. of copper carbonate with water into a thin paste, add 3 pints of strong liquid ammonia; the liquid produced should be dark azure-blue, with little sediment; before use add 45 gallons of water. Spray the Vines both over and under, and at first repeat every fortnight, later every three weeks, till the Grapes are nearly full size. Neither leaves nor fruit should be discoloured by the spraying, if so, add more water to the liquid. Before the leaves unfold next season, the Vines should be sprayed several times, using the Bordeaux Mixture, which is stronger than that described above. It checks the fungus better, but cannot be used on young Vine foliage or Grapes. The house might also be carefully cleaned, and it might be well to consider if the Vines are properly treated in regard to drainage, &c., and that they are not overfed with strong manures.

WIREWORM: E. B. What you send is a millipede, known as *Julus terrestris*; they feed on decaying animal and vegetable matter. Trap them with slices of Mangold, and apply a dressing of soot to the land.

WOOD-LICE IN FERN-HOUSES: R. P. & Co. We know of no better means of ridding Fern-houses of this pest than the old custom of entrapping the creatures by means of Turnip, Potato, or other food of which they are known to be fond. Hollow out a few Potatoes and Turnips, and put them about the houses, hollow side down. If these be examined early in the morning or during the night, it will be found that many of the wood-lice have congregated in them, and by carefully removing each piece and shaking it over boiling-water, and setting it again as a trap, the number present in the house will soon be considerably reduced.

COMMUNICATIONS RECEIVED.—R. Doe.—Ed. Tate.—Hurst & Son.—A. H.—E. Sandford.—R. P. B.—G. B. M.—J. B. R.—W. A. G.—Rev. D'O.—E. H. P.—W. H. S.—E. C.—R. D.—J. K.—S. Arnott.—E. G.—Expert.—W. M. W.—T. W.—M. B. SPECIMENS AND PHOTOGRAPHS RECEIVED WITH THANKS.—W. W.—W. G.

Continued Increase in the Circulation of the "GARDENERS' CHRONICLE."

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

TREBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.



THE Gardeners' Chronicle

No. 681.—SATURDAY, JAN. 13, 1900.

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GARDENING UNDER GLASS.*

By W. WATSON, ROYAL GARDENS, KEW.

(Concluded from p. 2.)

IF we compare the growth of plants in the open air in summer with that made by the same kinds of plants in shaded houses, the advantage is seen to be decidedly in favour of those grown in the open air; and although there is danger of burning or scalding where the glass is of bad quality, I am persuaded that if we shaded our glass-houses less, we should have better results. By shading we shut out the heat-rays as well as the light, and it is by no means an uncommon practice for gardeners to thus exclude the sun-heat, the essence of life to the plants, and to keep the water-pipes hot, the least healthy of conditions. Hot-water pipes are a necessary evil in a plant-house. An American writer has said, "The value of light in the growth of plants is not always fully appreciated. It is a common occurrence to see plants which require strong light for their development, struggling for existence in dark houses. Within recent years, however, there has been a marked improvement in the manner of constructing greenhouses, and there is no doubt that the improvement in many of the crops now grown can be attributed to the recognition of the fact that properly regulated light is one of the fundamental factors in the growth of plants under glass."

* From a Paper read at the Kew Mutual Improvement Society.

TEMPERATURES.

The requirements of almost all tender plants in regard to temperature are provided roughly by three grades, namely, (1) the stove temperature, which varies from a maximum governed by the time of year and the state of the weather, to a minimum in summer of about 70°, in winter about 60°; (2) the intermediate-house, the maximum for which varies as in the stove, whilst the minimum is 60° in summer, 50° in winter; (3) the greenhouse, which is practically an unheated structure, except when there is danger of the temperature falling below 40°. In the case of some plants it is desirable to deviate from these. Generally, we may say that the temperatures maintained in plant-houses vary between a maximum of from 50° to 90°, or even 100°, and a minimum of from freezing point to 65°. Whilst there are many indoor plants that are not injured by a few degrees of frost, nothing is gained by admitting frost into any glass structure.

With regard to the variation of temperature during the day and night, the practice in modern horticulture differs materially from that of earlier times. Then a regular temperature was aimed at, in the belief that it afforded the most favourable conditions. Knight, in a paper published in 1814, in the second volume of the *Transactions of the Royal Horticultural Society*, endeavoured to show the ill effects of excessive heat in forcing-houses during the night. He pointed to the mistake generally made by gardeners who, sensible of the comforts of a warm bed on a cold night, and of fresh air on a hot day, treated their plants to the same pleasures. The temperature of the plant-houses during the night, relatively to that of the day, was almost always much too high, and consequently highly injurious to the plants of temperate climes, especially fruit-trees, and not at all beneficial to those of tropical climates, where the temperature declined considerably during the night.

The difference between the temperature at evening and early morning in tropical countries is generally extreme, and in such distinctly tropical regions as Singapore, Jamaica, and Ceylon, it is usual to provide extra bed-clothes to be drawn on in the early morning. This fact has influenced our best indoor gardeners of to-day, and in the growing season the houses are syringed, closed early, and the sun allowed to increase the temperature considerably. During the night the temperature gradually falls, and in the morning, by 6 o'clock say, it reaches its minimum, a comparatively low one.

The importance of allowing the temperature to increase as the sunlight intensifies has already been touched upon. The evils of endeavouring to keep a house cool by excessive ventilation, especially at the top, must be evident to anyone who applies an elementary knowledge of physics to horticultural art.

"Each plant, each part of a plant, is best developed, and each function performed by it is carried on at a certain temperature, and is checked by excess or defect" (Masters). To know what this temperature is in the case of each plant is of importance. We endeavour to simplify this matter by classifying cultivated plants into stove, intermediate, and cool-house plants, as already pointed out, but the temperature must vary with the state or condition of the plant. An excellent rule, which applies to all plants more or less, is, that for a certain period in each year a rest from growth is beneficial. This rest is afforded by a reduction in

the supply of food, i.e., water, or by a lowering of the temperature, or by both.

Sachs has likened a plant to a steam-engine in its relation to heat. When the tension of the steam is slight, the machine is barely able to overcome the friction of its own parts, and under such circumstances can do little or no work. As the tension of the steam is increased the work increases also, until a point is reached when the maximum amount of work is done. Beyond this, the parts of the machine become strained, and a breakdown may result. In the case of the plant, there is a point in the temperature barely sufficient to induce growth. With increasing heat there is a corresponding increase of growth, until a point is reached when the best growth is made; beyond this point the growth may be quicker, but it is weak and lacking in stability. The best of our cultivators have learnt from experience what the optimum temperature for their plants is, and it is to this knowledge that the express cultures of the modern market-man are due. He will produce a fine healthy specimen in a year or two of a plant, which in the hands of the jog-trot cultivator would take five or ten years to grow to the same size, and which would probably be comparatively lean and scraggy. For his own purposes, the "express" man sometimes slightly exceeds the optimum temperature, but, as we know, plants thus produced are grown to sell, not to live. To recapitulate: temperatures during the day in the growing season might often be higher with advantage, and lower during the night; it is preferable to allow the temperature to rise above the normal under the influence of a hot sun, rather than attempt to keep it down by excessive ventilation; a high temperature with heavy shading must be avoided for healthy plants partial to sunlight.

WATER.

Careful, thoughtful watering is the key-note to success, and he who does not know how to water a plant cannot grow it. Given to excess the soil becomes stagnant, and a condition analogous to drowning animals is the result. The more water there is in the soil the less air it can contain, and as all plants, except aquatics, require air at the roots as well as water, if the soil is kept in a state of saturation air is excluded, and consequently the soil becomes sour. One essential condition for the active processes of oxidation and decomposition is, of course, the presence of air; an open porous soil is thus far more exposed to oxidation and nitrification than one in a closely consolidated condition: hence arises the beneficial effect of mixing porous substances, such as peat, charcoal, and sand, with stiff horticultural moulds. The operation of tillage also tends to promote in the soil oxidation of the organic matter, and assist in its nitrification. A sufficiency of water is essential for the activity of all living agents; oxidation and decay are thus far more rapid in a moist soil than in a dry one. The constant waterings given to plants in a well-conducted garden provides this condition. It must, however, be remembered that a great excess of water is fatal to oxidation, the admission of air being excluded as soon as the soil is filled with water. (Willis.)

A careful waterer can almost afford to be indifferent as to the quality of his soils. In my opinion, so long as its physical properties—texture, temperature, and moisture—are perfect, the quality of the soil in regard to many plants is of small importance. This is seen in the growth of many Orchids under conditions where moisture and air are the sole sources of food, a wood block, crocks, or living sphagnum being the medium through which they are

supplied. Of course, gross-feeding plants are best in a soil rich in foods; but I believe the foods could be afforded artificially, less conveniently, perhaps, if the roots were in sand. We know from experience that this is so. The point to be emphasised is, that water, rather than soil, is to plants what food is to animals, and a knowledge of the quantity, and time to supply it, required by a plant is of great importance. In the open air, Nature, supplemented by man generally, regulates these matters; but in glass-house gardening, where the whole of the conditions are artificially supplied, a knowledge of the part that water plays is essential. The careful waterer is a treasure in glasshouse gardening.

(To be continued.)

NEW OR NOTEWORTHY PLANTS.

SOLANUM WORSLEYI.

In this new plant we have one that is either closely allied as a species to *S. Melongena*, or an extreme varietal form of it. For its introduction (fig. 5, p. 19) we are indebted to Mr. Worsley, Mandeville House, Isleworth, who obtained seeds of it near Petropolis, Rio, where it is grown in the highlands by the country people, on the pillars and sides of verandas surrounding their houses. It is described by Mr. Worsley as a scandent plant, and as such he has grown it in his greenhouse, where the stems have attained a length of about 8 feet, and produced numerous fruits. The plant differs from all cultivated forms of *S. Melongena* (Aubergine, &c.), in being destitute of spines in its woody stem, and in the colour of the fruits, which, when ripe, are of a bright scarlet. They are developed singly or in pairs on stalks 2 inches long, and are about the size of a hen's egg. The leaves are ovate lanceolate, lobed, softly pubescent, 6 inches to 1 foot long. Mr. Worsley says that the fruits ripen in summer in Petropolis, and are cooked in a green state to serve as a vegetable, being held in high esteem by the natives. He found the fruits eaten in Brazil palatable, and possessed of tonic properties, whereas those produced at Isleworth were acrid and disagreeable; this, however, might be due to the slow development of the fruit, or to improper cooking. The plant is hardier than *S. Melongena*, and as hardy at least as the Tomato, with which it may be cultivated. It can be treated as an annual, but is probably perennial. This plant may be useful for the conservatory if grown in pots outside during the summer, and brought under glass to mature its fruits, which last a long time, and are very bright in colour. Examples of it may be seen at Kew. *W. W.*

TAGETES LEMMONI.*

We are indebted to Mr. Gumbleton for the opportunity of figuring this newly-introduced Marigold. It attains a height of 3 feet, and from the profusion of its yellow flowers is highly decorative. It is, we presume, a perennial, and was discovered by Mr. Lemmon in the Huachuca Mountains of Southern Arizona. We append Dr. Asa Gray's description, which, together with our illustration (fig. 6, p. 21), will supply all the details about the plant, except those which its cultivation may be expected to reveal.

* *Tagetes Lemmonii*.—Fere glaberrima, 2-3 pedalis; caulibus strictis superne subfastigiatis ramosis paniculato polyccephalis; foliis omnibus oppositis; foliolis 5-7 lanceolatis seu elliptico linearibus aequaliter serratis (lin. 2-4 latis, majoribus sequi-bipollicaribus); pedunculis breviusculis gracilibus subulatis bracteolatis; involucri oblongo campanulato subtruncato glandulis ovalibus oblongisve maculato; ligulis 6-8 semi-pollicaribus; corollae disci lobis, 4-6 imbricatis; pappi pileis brevibus inequalibus 1-3 subulatis ceteris 2-3 plo. longioribus.

Huachuca Mountains, S. Arizona, Lemmon. Asa Gray, in *Proc. Amer. Acad.*, xix. (1883), p. 40.

ORCHID NOTES AND GLEANINGS.

LINDENIA.

In the last number there are figures of:—

CATTLEYA TRIANELI, Lind. (var. *PLATYCHILA*, *CANDIDULA*, *LATISSIMA*), tab. 677.—The variety *platychila* has a very broad two-lobed lip, with a large anterior deep violet blotch in front of the yellow throat, the two side lobes of the lip do not meet, so that an open space is left, exposing the column as happens, we are told, constantly in *Cattleya Mantini* × var. *candidula*. Here, the anterior lobe of the lip is whitish, with a narrow purple blotch and a yellow throat; var. *latissima* has very broad undulate segments of a deep rose colour, the tip has a deep purple blotch in front of the yellow throat.

SOBRALIA XANTHOLEUCA, Hort., tab. 678.—Flowers of a citron-yellow, with the lip of a deeper tint. It is a native of Guatemala.

ODONTOGLOSSUM ASPERSUM (var. *BOSSCHERIANUM*), tab. 679.—This differs from the type in the brown sepals, narrowly edged with yellow. The spade-like lip is white.

PERISTERIA ELATA, Hook., tab. 681.—See *Gardeners' Chronicle*, December 23, 1889, fig. 155.

NOVELTIES OF 1899.

(Concluded from p. 4.)

STOVE AND GREENHOUSE PLANTS.—In all sections of plants most useful for decorative purposes great progress has been made. Each has been recruited by worthy novelties.

One of the best plants of the year was the brilliant and floriferous *Kalanchoe flammea*, a fine group of which was exhibited by the Director of the Royal Gardens, Kew, making one of the most admired objects at the Royal Horticultural Society's Show at the Chiswick Gardens, July 11, 1899.

In new and good hybrid *Amaryllids*, the amateurs have decidedly taken the lead. Sir TREVOR LAWRENCE, Bart. (gr., Mr. W. Bain), has produced the handsome *Eucharis* × *Burfordensis*; Captain HOLFORD, of Westonbirt (gr., Mr. A. Chapman), whose collection of *Amaryllis* is the oldest and best in the country, received Certificates for *Hippeastrum Apple Blossom*, H. Murillo, H. Robin, and H. Virginia; while that careful worker in Nerines, H. J. ELWES, Esq., has for his best N. Miss Willmott, N. Mrs. Berkeley, and N. Mrs. Godman.

The *Begonias* have been recruited by good novelties in the tuberous section by Mr. T. S. Ware, R. Hartland & Son, and others; while the still more useful and almost perpetual-flowering *B. Gloire de Lorraine* is likely to become the forerunner of a separate section; the floriferous *B. Mrs. Leopold de Rothchild*, raised, or rather secured by selection, by Mr. Jas. Hudson, who also has a variegated form of it; and the white variety, *B. Caledonia*, of Mr. Forbes, of Hawick, being a good commencement.

Richardia suffusa, a new primrose-coloured *Calla*, with purple eye; and the rich orange *R. Pentlandi*, Tring Park variety, were certificated to the Right Hon. Lord ROTHSCHILD (gr., Mr. E. Hill).

Messrs. JAS. VEITCH & SONS have evolved new beauties from the showy *Phyllocacti*, *Amaryllis*, greenhouse *Rhododendrons*, and other handsome popular genera; and various other desirable novelties have appeared, many of which will be found in the appended list of new and rare plants, illustrated in the *Gardeners' Chronicle* in 1899.

CHRYSANTHEMUMS

have deservedly occupied much attention during 1899, and some thirty new varieties have been certificated, chiefly to the different specialists. There seems to be a laudable wish to advance the single-flowered section, which, if carefully pursued, would meet with good results.

AMONG FERNS

there have not been many novelties certificated, though some very useful garden-raised varieties for market purposes have appeared. The best certificated Fern of the year, perhaps, is the *Davallia illustris*, an elegant, finely-cut species, suitable either for large or small plants, for baskets, rockeries, or pots, shown by Messrs. JAS.

VEITCH & SONS. The others certificated are the distinct *Adiantum Burni*, and the finely-divided *Polystichum angulare divisilobum plumosissimum*, of Messrs. W. & J. BIRKENHEAD.

GARDEN FLOWERS, &c.

Of Carnations, Dahlias, Roses, Narcissi, Delphinium, Phloxes, &c., there have been numerous new varieties exhibited, many of which have possessed remarkable merit.

FLOWERING AND ORNAMENTAL SHRUBS.

Of flowering and ornamental shrubs and trees, there have been more varieties certificated than usual during the past year, a most gratifying circumstance.

The following novelties and rare plants were illustrated in the *Gardeners' Chronicle* in 1899:—

- Aster nanshanicus*, May 27, p. 331.
- Begonia Mary Pope*, June 3, p. 361.
- Begonia Jessie Pope*, June 3, p. 360.
- Campanula Mayi*, August 12, p. 127.
- Campanula mirabilis*, October 7, pp. 274-5.
- Chrysanthemum Mrs. Alfred Tate*, December 2, p. 419.
- Cereus candicans Dumesniliana*, December 2, p. 415.
- Cortaderia Lambleyi* fol. var., May 27, p. 335.
- Crinum Van Tubergen*, August 12, p. 131.
- Deutzia discolor purpurascens*, July 15, p. 43.
- Dianthera illustris*, May 27, p. 331.
- Dracæna Doucetii*, fol. var., May 13, p. 291.
- Dracæna Victoria*, October 21, p. 315.
- Echium candicans*, July 22, p. 71.
- Erythronium Johnsoni*, April 22, p. 253.
- Eucharis Burfordensis*, September 23, p. 247.
- Eucharis Stevensii*, September 23, p. 243.
- Eucharis Elmetiana*, November 4, p. 345.
- Fouquieria columnaris*, October 7, p. 277.
- Galanthus Cassalia*, March 18, p. 165.
- Grape Lady Hastings*, Black Muscat, August 19, p. 157.
- Gymnogramma schizophylla prolifera*, Supplement, June 3.
- Iris Sofrana*, November 29, p. 391.
- Kalanchoe flammea*, July 15, p. 47.
- Lowrya campanulata*, February 25, p. 117.
- Narcissus King Alfred*, April 8, p. 221.
- Nepenthes Balfouriana*, July 29, p. 91.
- Nerine Miss Willmott*, November 29, p. 399.
- Passiflora Margaret Wilson*, February 11, p. 89.
- Pharus guianensis albo-striata*.
- Pittosporum crassifolium*, September 9, p. 205.
- Polystichum ang. plumosissimum*, June 3, Supplement.
- Primula Her Majesty*, April 1, p. 203.
- Primula Lady Emily Dyke*, March 25, p. 181.
- Primula Swanley Giant Improved*, April 1, p. 205.
- Raspberry Golden Queen* (Veitch), July 22, p. 63.
- Rhododendron Kingianum*, October 21, p. 306.
- Strawberry Mentmore* (Laxton), July 29, p. 93.
- Taxonia militaris* ×, December 30, p. 487.
- Thamnochortus insignis*, April 22, p. 251.
- Thamnochortus spicigerus*, April 22, p. 249.
- Veronica Chathamica*, November 11, p. 353.
- Veronica Cookiana*, October 14, p. 297.

SEASIDE PLANTING OF TREES AND SHRUBS.

(Continued from p. 433, vol. xxi.)

Of deciduous flowering shrubs preference should be given to those that come into leaf late, and of which the foliage is small and of some substance, so that it may be able to battle with the spring gales, while those with pinnate leaves are to be preferred to those with large entire foliage of little substance. For instance, the Bladder Senna (*Colutea*) makes nice neat shrubs, and flowers most freely, generally producing its bladder-like seed vessels in profusion, while the masses of orange-yellow flowers that precede these are by no means ineffective. Other Papilionaceae are *Coronilla emerus*, and its greenhouse relative *Coronilla glauca*, which lives

through the winter on the south coast in most seasons, and gives abundance of its bright yellow blossoms, the first being quite hardy everywhere; and while we are with this genus it may be quite as well to note some of the Indigo shrubs which have proved hardy, as *Indigofera Dsoua*, and a variety from the north-west Himalayas, called *Gerardiana*, both are covered with drooping racemes

the ripened wood all along the fine shoots, abundance of bright, rose-coloured flowers, succeeded later by its small, glossy foliage, but very rarely setting or maturing any fruits.

Daphnes.—Another early-flowering shrub which gives its flowers before its foliage is the common Mezereon (*Daphne Mezereon*); its inflorescence is disposed all along its upright, somewhat stiff

borders, or on the rockery, but must have peat and moisture to do satisfactorily.

Myrica and Clethras.—If you have peat, both Candleberry Myrtles (*Myrica*) *Gale* and *M. cerifera* will thrive, but are not very ornamental, merely giving variety to the border; while their leaves, when swept by the wind, give off a scent of Myrtle. The dwarf-growing, white-flowered *Clethras*, do well by the sea, especially the Alder-leaved kind (*C. alnifolia*); and in the favoured climate of our Devon and Cornish coast, the finest of the genus, the *Clethra arborea* from Madeira would doubtless prove hardy, and make a handsome evergreen shrub.

Euonymus.—There are some subjects valuable for their ornamental fruits. One of these is the most attractive, but singularly neglected Broad-leaved Spindle-tree (*Euonymus latifolius*), for it has much to recommend it to planters; but, as London remarks, it must not be planted among a crowd of other shrubs, where it is apt to be drawn up and spoiled, but put in an open position, when it develops into a dome-shaped specimen, and will be well clothed with its handsome, broad glossy leaves, and flowers freely from June to July, and in the autumn is covered with its bunches of large red fruits, which hang down, and when ripe their capsules burst, and display their bright orange seeds, which are protruded from the valves of the capsule, remain in evidence a long time. The leaves turn a deep purplish-red, and are very attractive, and when they fall the shining red-green wood is still very handsome, and this is enhanced when the purple-brown buds become conspicuous. Our native Spindle-tree (*E. europæus*) also succeeds by the sea, but is not so good as the Austrian *E. latifolius*.

The Mock Orange (*Philadelphus*) may be used, the old variety, *P. coronarius*, doing best, though I have had the fine *P. speciosissimus* make large bushes, and flower most abundantly.

The Flowering Currants (*Ribes sanguineum* and *R. aurum*) though they at times, when in young leaf, get singed with the salt-laden gales, soon recover themselves, and in favourable seasons flower freely. The first will also produce fruit.

The Lilacs, both the common red and white, with the distinct *Syringa Ernodi*, from the Himalayas, are almost always satisfactory, but should be planted in only small specimens, when they will have a chance to become acclimatised. Though their foliage is large, there must be something in its form or structure that enables it to withstand rough winds.

Of *Deutzias*, the hardiest are the Japanese *D. crenata*, either the single or double-flowering variety, but those that come from India, even so far north as Nepal, are not reliable.

Rhus.—Good use may be made of the Sumachs (*Rhus*), the variety, called from its stiff, red-brown inflorescence, Stag's Horn (*R. typhina*), making large straggling shrubs, that are best headed back every few years. These flower freely on the points of the shoots, and afterwards the bold pinnate foliage turns a brilliant scarlet, and remains some time to delight the eye, in contrast to the surrounding dark green autumn foliage. Gathered when in full colour, and pressed in a book, the foliage retains its bright colour, and may be used for decoration; a thin coat of varnish, or even gum arabic, will stiffen the leaves, and help them to retain their colour. A variety of the N. American *Rhus glabra*, with foliage like a Fern, called *laciniata*, is worth growing for this alone; but the Cobweb-tree, *Rhus Cotinus*, or Venetian Sumach, forms a most attractive object, and when covered with its singular seaweed-like flower-heads, is very ornamental. It should be granted a warm sheltered spot, and it loves a moist peaty soil.

Staphylea.—The Bladder Nuts, *Staphylea*, are desirable, both from their distinct foliage and their sweet-scented white flowers. The pinnate-leaved kind is a native plant, but the N. American kinds are quite as hardy. The *S. colchica* flowers too early for our cold springs, but is excellent when grown in pots for forcing.

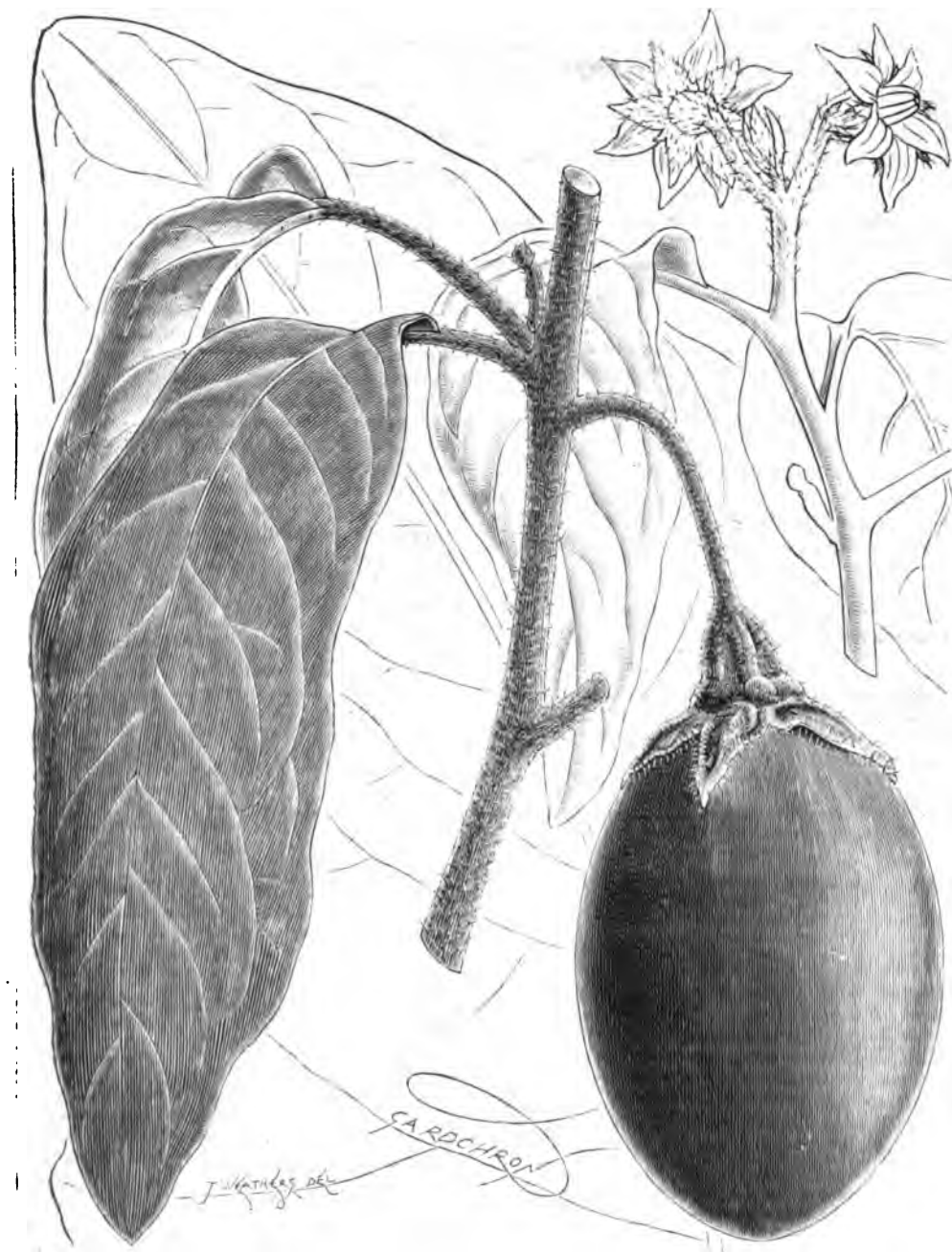


FIG. 5.—*SOLANUM WORSLEYI*. (SEE P. 18.)

of bright pink pea-shaped blossoms from May to September, and their finely pinnate foliage is elegant.

Almonds.—Perhaps the prettiest little flowering shrub one can use is the very early blossoming dwarf Almond (*Amygdalus nana*). This is a neat, low shrub, not exceeding 2 to 3 feet in height, which grows freely in ordinary dry soil, creeping along just under the surface, and throwing up abundance of suckers, clothed with small foliage, resembling some of the Willows, and producing on

branches. The flowers are fragrant of an evening, but not to be compared to the other *Daphnes* proper, not even the common Spurge Laurel (*D. laureola*), or its Levant variety, *D. pontica*, the greenish-yellow flowers of which are deliciously sweet of an evening. Both of these will thrive at the seaside, preferring a somewhat shady spot. The delightfully fragrant trailing *Daphne* (*D. Cneorum*), if the soil be moderately rich or peaty, will form pretty tufts, and give its sweet flowers twice in the year. It should be planted in the front of the

FRUIT-TREE ENEMIES.

UNFORTUNATELY, there are still a few insect-pests for which no certain cure has up to the present been found, but a great deal of disease which now exists could be checked, and in some cases in time entirely cured, if greater attention were paid to washing the trees in the winter or early spring, and sprinkling lime around the roots, as most of the pests lie dormant or in the chrysalis stage, in the ground or in the crevices of the bark.

I give below two excellent winter washes for trees, which if tried once, will I think always be used. The first should be used for Codlin-moth and American-blight, the second one for Lichen or other parasites:—1. Boil 3 lb. soft-soap in half-a-gallon of water for one hour, stirring frequently; then take from the fire, and pour into it $1\frac{1}{2}$ pint of petroleum; stir the mixture thoroughly until it becomes milky-looking, then add 24 gals. of water (rain-water preferred), stir again, and the wash is ready for use. It can be applied with an ordinary syringe while fairly warm.

2. Get a wooden pail or tub, and dissolve 1 lb. caustic soda in a little hot water, pouring the water on gently; also dissolve 1 lb. pearlash, mix them together, and dilute with 10 gals. of water. This should be applied with a brush, and worked well in to the crevices of the bark.

The following show the most generally known enemies of our fruit-gardens, and the methods used for successfully combating with these pests:—

CODLIN-MOTH.

The larvae of this most destructive of all insect-pests are found in the curled-up leaves of Apple-trees, generally in May. All the affected leaves should be, if possible, picked off and burnt. Later on in the season, the small and deformed fruits which drop off (not windfalls) should be treated in the same manner, or given to the pigs; well spraying the trees with the paraffin-wash mentioned in the last paragraph of this article.

BLACK CURRANT MITE OR "BIG BUD."

There does not seem to be a cure, so far, for this destructive pest, which ruins whole plantations. Some growers pull up and burn all the affected bushes, and dig in a quantity of gas lime into the soil. Others, again, prune back very hard half of their bushes one year, and the remainder the next. This means a great loss as regards fruit. I have heard that where fowls are allowed the run of the orchards or fruit plantations the mite is scarcely ever seen, and the slight damage they do to the fruit-buds is more than repaid by a crop free from disease. It is well to plant Black Currants in rows, with other bushes between, to prevent the spread of the disease.

AMERICAN BLIGHT.

A woolly-looking substance, investing a cocoon, and principally infecting Apple-trees. The following recipe of a well-known fruit-grower is an excellent one:—Arsenite of soda, 1 oz.; soluble petroleum, 2 lbs. (if this latter is not obtainable, boil $1\frac{1}{2}$ lb. of soft soap in 1 gallon of water (rain-water), and when melted, take from the fire and add $\frac{1}{2}$ pint of paraffin-oil, mixing thoroughly), and 12 gallons of rain-water. Dissolve each separately, the petroleum being dissolved in hot water, and stir them well together in an old wooden tub. Well syringe the trees with this mixture, and wherever possible, brush the boughs with a small brush dipped in the solution.

GOOSEBERRY CLUSTER-CUP FUNGUS.

This parasite affects both fruit and leaves, which, when attacked, show yellowish spots, gradually turning to orange-red. This disease greatly enfeebles the trees, and, unfortunately, there does not appear to be a radical cure. The best way is to cut off and burn all the affected boughs, and spray the bushes with sulphide of potassium or liver-of-sulphur, using $\frac{1}{2}$ oz. to 1 gallon of rain-water.

GOOSEBERRY CATERPILLAR.

The saw-fly lays its eggs on the under side of the leaf, and having done so falls to the ground, where

it remains in the pupa state till the following autumn. Pick off the affected leaves and burn them, then sprinkle Hellebore-powder on the bushes after a shower, and in a few days well syringe them with clean water. In the autumn take away the top soil around the affected bushes and spread lime and soot underneath, adding fresh soil. Then towards the end of March dig in more lime.

CANKER.

The signs of attack are shrivelling and crinkling of the bark, which at last bursts, and a large gaping wound is formed. This disease is generally caused by poorness of the soil, and by a fungus which enters the cracks of the bark; the best remedy is to remove some of the earth and give the tree a good dressing of manure. The wound should also be dressed, rubbing it with a chisel till the healthy wood appears, and then brush on Stockholm tar.

MILDEW.

The following solution is excellent for syringing or spraying trees with. In dry weather use liver-of-sulphur, 1 oz. to 10 gallons of water; in wet weather, 1 oz. to 6 gallons.

GUMMING.

If this occurs to a large extent the tree will slowly die. The best method to stop gumming is to scrape all the gum away and well wash the place where it formed, and stop it with a mixture of tar, clay, and horse-dung.

LICHEN OR "MOSS."

Wash the trees thoroughly with a strong solution of lime-water, and later scrape off the lichen, taking care not to injure the bark.

ANTS.

Pour boiling water into their holes; or paraffin is equally good.

APHIS, OR GREEN-FLY.

Well syringe and spray the affected trees with a paraffin wash, made as follows: Boil 1 lb soft-soap for one hour in a quart of water, remove from the fire and add half-a-pint of paraffin-oil, stir well and dilute with 10 gallons of water. E. H. Potter, Bedford Road, South Woodford, Essex.

THE ROSARY.

ROSES OF RECENT ORIGIN.

SINCE the introduction of Turner's Crimson Rambler in 1893, no climbing variety of equal value for garden decoration has appeared. We have indeed had those miniature beauties—Aglais, Thalys, and Euphrasyne; but I do not think they have made much impression upon the minds of rosarians. In any case they have not created for themselves a universal popularity, such as that which was at once achieved by the brilliant climber (which, nevertheless, was very fortunate in its English introducers) to which I have referred. Nor do I care much for Alister Stella Gray. Its flowers are almost too small to be effective; they are pretty when in bud, or even half-expanded, but they are not so attractive when fully blown. It is said to be a variation from William Allen Richardson; if so, I can only say that the parent is infinitely superior to its offspring. Both, however, are lacking in substance and compactness of petal, a serious limitation. Then we have a white Maréchal Niel, which, as might have been anticipated, is not pure white. It has not, consequently, met with what could justly be termed an enthusiastic reception. Any Rose possessing the regrettably pendulous habit, tenderness of nature, and susceptibility to atmospheric influences (especially heavy rain) as Maréchal Niel, is not constitutionally adapted for garden cultivation; it should be restricted to the regions of glass. Climbing Perle des Jardins is better adapted for open-air culture; but while, often richly effective, it has a tendency to

open imperfectly; there seems to be some error in the arrangement of its petals, which Nature is utterly unable to rectify. I have a large plant of this beautiful climber on the end wall of this manse, "locking," as Tennyson says of his dark Cedar, in *Maud*, "to the south, and fed with delicate air" (though not yet "haunted by a starry head"); but I find that though adequately protected from frost during the winter, and productive of exquisite foliage during the summer, the new shoots being always of a tender chocolate colour, it is by no means very prolific of its flowers. The original non-climbing Perle des Jardins in the open garden is, *mirabile dictu*! much more productive, though growing in a somewhat shady situation. A derivative from this Rose, entitled the White Perle, is a favourite with me; the delicate carmine-tinting on the edges of the white petals being very picturesque. Climbing Mrs. W. J. Grant, newly introduced into cultivation by Mr. William Paul, of Waltham Cross, has had a gratifying reception, and promises to be a very valuable "introduction." Several of Mr. Paul's Roses of comparatively recent origin have already achieved an enviable renown, especially such fine varieties as Enchantress, creamy-white in colour, and bearing a profusion of its graceful flowers, a precious hybrid between the Teas and the Chinas, and the most perpetual of all Roses, flowering very freely in winter under glass; Empress Alexandra of Russia, whose very remarkable colour has of late created a kind of controversy with regard to its value among Rose cultivators; Aurora, a charmingly-coloured pink Hybrid Tea; and Tennyson, which is described as deriving its characteristics from Mr. Paul's White Lady, still one of the grandest Roses of its special class.

Another hybrid Tea Rose of the rarest beauty and of commanding dimensions, besides being fragrant and very floriferous, is Bessie Brown, raised and introduced by those eminent Irish rosarians the Dicksons, of Newtownards, whose Meta, Beryl, Ulster, and Ardover (the last mentioned variety being a brilliant crimson, with a climbing tendency), are also highly interesting recent introductions. Purity, a beautiful white hybrid Bourbon, for which we are indebted to Messrs. Cooling & Sons, has won the Gold Medal at the National Rose Society, the highest honour that Association can bestow. Another new Rose that has been equally successful in this special direction, and promises to be of permanent value, is Mrs. James Cocker, raised by the well-known Aberdeen rosarians, whose attributes (I mean those of the Rose) have been derived from Mabel Morrison, a white Baroness Rothschild, and Mr. John Laing. One of the loveliest varieties of recent origination is expressively entitled Sunrise, by reason of its extremely bright and luminous hue. It was raised by the Messrs. Piper, at their Uckfield Nurseries, in Sussex, and I had the gratification of seeing it nearly two years before the date of its introduction. Paul's Royal Scarlet I have recently acquired, and anticipate that it will prove a great acquisition.

Among recently-introduced Continental varieties, two of the most promising are Comtesse Vitali and Grande Duchesse Anastasia (Nabonnand, 1898); while the richly-coloured Roses raised at Lyons, and dedicated by the great French rosarian of that region to the memories of J. B. and Catherine Guillot, have already achieved a considerable reputation. David R. Williamson.

FLORISTS' FLOWERS.

A PLEA FOR THE FANCY PELARGONIUM.

WHO actually originated the fancy Pelargonium we shall probably never know with certainty, but there is reason to believe the remote parents were the species *P. angulosum* and *P. grandiflorum*. About the year 1840 the varieties were very few, and they chiefly of continental origin, such as Acidis,

Ibrahim Pacha, Jehu, &c., and a variety named Queen Victoria, raised by a Mr. Sheppard, of Winchester, which, it is believed, appeared about the time the Queen came to the throne. At that time the Pansy and the Dahlia dominated in floricultural circles; the large-flowering Pelargonium was undergoing transformation from a starry, thin

possess, though in the later productions of the late Mr. C. Turner this was not so apparent. But few new varieties are now produced, because, beautiful as the fancy Pelargoniums are from a decorative point of view, they are not grown so much as they deserve to be. It is to be hoped there will always be some one interested in this delightful class of

good shape, because they naturally take on a compact form. Then as soon as the plants break into growth at the stopped points, they should be shifted into their blooming-pots, so as to have the pots well filled with roots by the time the plants flower. A rich soil is indispensable to the fancy Pelargonium, and it may consist of two parts of a



FIG. 6.—TAGETES LEMMONI, SP. N.: COLOUR OF FLOWERS YELLOW. (SEE P. 18.)

petalled, type to something more rounded in outline, and of greater substance, and the fancy type undergoing similar change in the hands of Ambrose, Gaines, and others. It was noticed then, as it may be noticed in the present day, that the fancy type is of more delicate constitution than the larger-flowered type, of closer and softer wood, more floriferous, and there could be noticed that there exist shades of colour which the other does not

Pelargoniums who will cultivate and preserve it from being wholly lost.

The fancy Pelargonium thrives best in a little warmth during the winter season, needing more than the large-flowered show types. Anyone having a warm greenhouse can at this time of the year obtain plants in 4-inch pots, and it is well at this season of the year to pinch back the leading shoots so as to induce the plants to assume a

good, turfy loam, one part of leaf-mould, and one part of well decomposed cow-dung, with a free admixture of silver-sand. The pots need to be well-drained, as anything in the way of a soddened soil must be avoided, or the plants rapidly go back. From this point to the time the plants flower, they should be kept as near the glass as possible, and that is why they are generally placed at the top of the plant-stage; they should be

lightly syringed in sunny weather, never allowing the soil in the pots to become dry, or the foliage to flag. Fumigation is necessary should the plants become infested with green-fly. Overpotting must be avoided as a mistake that may account for many failures. The root accommodation needs to be more restricted than in the case of the large-flowered type.

The treatment after blooming may be set forth in a few words. By the end of July or the beginning of August, the plants should be turned out of the pots, the soil shaken from their roots, and the latter pruned at their points previous to repotting, selecting pots just large enough to take the roots; then replaced in the greenhouse, shaded from the sun at midday, and kept a little close for a few days. Frequent syringings overhead should be given.

A display of bloom can be had in autumn and the early months of winter by striking cuttings in May or early in June; a little warmth is necessary for these late ones, to cause them to expand their blossoms freely. A good compost for such plants is equal parts of good turfy loam, peat, well-decomposed cow-manure, and leaf-mould, with a good portion of silver-sand. The pots, at the last shift, should be made nearly half full of drainage.

The following varieties of fancy Pelargoniums are obtainable? *Delicatum* and *Roi des Fantaisies*, two varieties which have been in cultivation nearly or quite half a century; *Nelly Fordham*, *Princess Teck*, a charming light variety; *Bridesmaid*, Mrs. Alfred Wigan, and *Princess Helena*. R. D.

POPULAR WHITE CHRYSANTHEMUMS.

Looking over the records of the shows it is curious to notice what a high position many of the good white varieties occupy. First of all show Chrysanthemums is *Calvat's* fine variety, *Madame Carnot*. Others in order of merit are *Madame Gustave Henry*, Mrs. J. Lewis, *Pride of Exmouth*, *Madame L. Remy*, Mrs. H. Weeks, *Mutual Friend*, *Nellie Pockett*, *Simplicity*, *Madame Ph. Rivoire*, &c. C. H. P.

PROPAGATION OF CHRYSANTHEMUMS.

No time should be lost in getting in cuttings of varieties of all sections, whether the blooms are required for exhibition or for home use. With a few exceptions, the five members of the *Vivian Morel* family, all Japanese varieties, are the better for a long season of uninterrupted growth. In the case of incurved varieties, early propagation is the more necessary. Contemporary growers do not succeed with the Chinese type of Chrysanthemum as they might do, by growing the plants in a more natural manner. Incurved Chrysanthemums require a long season of steady, uninterrupted growth, so that progress is marked by gradual maturation of the wood-tissues. It is only under the latter conditions that perfect examples of this section can be obtained.

Liverpool cultivators twenty years since did not dream of taking their cuttings of the "Queen" family in February, they preferred to insert them in December. I have seen better blooms of this type growing against a south wall many years ago than I have seen blossoming in the best appointed greenhouse during the past two seasons.

The single-pot system of propagation is best. If stout cuttings are inserted in sandy soil under a handlight in a cool house they emit roots readily, and with careful attention which will prevent moisture condensing on the leaves and stems, the tiny plants in one month's time will be ready for a position close to the glass in a house where frost only is excluded. Directly the small pots are full of roots shift on the plants to larger ones, and do not wait for a fixed date. There must be no check to growth.

Watering at this season of the year should be done with extreme care. Loss of chlorophyll, or colouring matter, in the leaves, is due to a check to growth caused by inaction of the roots, owing to an excess of moisture. The best, and much the easiest, of cures for pale-coloured foliage in Chry-

anthemums, is to keep the soil in the pots on the dry side, until a change in the colour of the leaves takes place, even if the leaves are almost at the flagging stage.

Cuttings of decorative varieties should now be inserted, and to save space and time, two cuttings may be put in one pot. Both can be grown on together, or may be divided at potting time without much check. Do not forget a good batch of single-flowered varieties; they will be found most useful at next Christmas. It is surprising what a long time the blooms of this type will last on the plants if the house is kept cool and airy. E. Molyneux.

THE WEEK'S WORK.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener, Stoke Edith Park, Hereford.

Morello Cherries bear on the wood made during the previous season, and fruiting-spurs are therefore unnecessary. A mistake, and that a common one, is to lay in far too much young wood during the summer, and these in consequence become much crowded. Trees in such a condition must be well thinned out, and care taken in future to see that this error is not repeated. The first thing to be done is to cut away all the weakest and awkwardly-placed shoots and retain only the best, both in regard to their strength and situation. The knifeman must see that enough are left to furnish each tree with a sufficiency of bearing wood, which, when laid, should not be nearer to each other than from 3 to 4 inches. In the case of young trees, as many shoots must be left as are requisite for furnishing and extending them; but cut back, or remove as may appear necessary, any that are unduly strong. Trees that have become very crowded, may, with advantage, be relieved of a few of the oldest and decrepit branches. Should this be impracticable such old branches may be shortened back to a point from which younger and healthy ones emanate.

Sweet Cherries require treatment different to that advised for the *Morello*, inasmuch as they fruit upon spurs. If the trees were given proper cultural treatment last summer, but little needs now to be done, beyond shortening spur-growths, and tipping or cutting back, according to the space to be covered, young shoots that are retained to extend the tree or to replace faulty branches. Choice *Cherries* are well worth the protection afforded by a wall, and for such positions trees trained in diagonal form are best. The "fan" method is sometimes employed. Young trees trained after the latter form must be given close attention, and sufficient shoots left on the ends of the main and subsidiary branches to extend the tree. Cut back any "foreright" shoots to form fruiting spurs. Young trees that are trained diagonally will need, in addition to the shoots at the extremities of the branches, one left also on the main stem for upward extension. This will now require to be shortened to a point from which two shoots may be trained out right and left to form another tier of branches, and one to extend the main stem. Cordon-trained trees bear remarkably well if kept summer pinched. Cut back upon such trees any extra long spurs. *Desert Cherries* are not a success on all soils, and in some instances make too strong a growth, and gum badly. Lime-rubble is a good corrective in such cases, and lifting and laying the roots out in compost in which the latter is freely mingled. Impoverished trees should be given a dressing of 3 lb. bone-meal, and 1 lb. each of muriate of potash and superphosphate of lime. Mix all together, and strew on the surface at the rate of 2 oz. per square yard. The *Kentish* or "Pie" *Cherry* succeeds well on north or east walls as fans, and needs similar treatment to that described above.

Plums.—Established trees require much the same kind of pruning as the *Cherry* and *Pear*. Old and barren trees, having spurs projecting some distance from the wall, should be dealt with in the same manner as directed for *Apricots*, and if the trees are healthy, a fair quantity of new compost placed over the roots, after removing the inert surface-soil, will prove of great assistance in effecting their renovation. Cordons need to be closely spurred, and thin them out if they have become crowded. Upon young cordons, cut back

last year's growths as far as appears needful, and to a sound bud. Cordons may be trained to reach the coping of any ordinary wall in three seasons. Some varieties of *Plums* do not succeed as cordons, two notable examples being *Victoria* and *Golden Drop*. The latter, trained fan-shape, does well here on west, east, and north aspects. Impoverishment is oftentimes the cause of wall *Plums* ceasing to bear satisfactorily, and nothing restores them more quickly than a 2-inch mulch of partly-decayed manure, applied after loosening the surface-soil. The chemical manures recommended for *Cherries* may be used when farmyard or stable-manure is unobtainable.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WHEAT, Bart., Clare Lawn, West Essex.

Propagation of Orchids.—Like the majority of *Monocotyledons*, *Orchids* can rarely be propagated from "cuttings," as the term is generally understood, but easily from offshoots, or adventitious growths. Propagation by seed as a means of preserving the species has been seldom attempted, the chief aim having been to raise seedlings of hybrid parentage. There are one or two other methods by which our stock of certain *Orchids* may be increased, such as by the division of the root-stock, or rhizome, pseudo-bulb, and leaf-stem. The first may be employed in nearly all cases where the plant has a progressive root-stock, to which are attached healthy living bulbs, with dormant "eyes" or buds. In this case the root-stock should be notched or entirely severed immediately in front of a promising bulb, far enough back from the leading growth to prevent injury resulting to the main plant. This operation should be performed now, when the plants are more or less at rest, so that the dormant bud may subsequently benefit from the early flow of sap, and commence to grow at the best season for ensuring mature development ultimately. Until the new growth has attained a condition suitable for the emission of roots, the plants must not be disturbed; then, however, they should be divided and potted-up, and treated as the plant from which they were obtained. This method applies more especially to *Cattleyas*, *Lælias*, *Epidendrums*, *Dendrobiums*, *Cœlogynas*, &c. *Cypripediums* may be divided when the plants are being repotted, and even if there be no roots on the severed portions, pot them up, afford them careful treatment, and in most cases success will follow. Every portion of the root-stock of valuable *Cypripediums* should be saved, as the chances are greatly in favour of its breaking into life again. These need not be immediately potted, but laid amongst the plants on a moist stage.

Division of Pseudo-bulbs.—The genus *Dendrobium*, and one or two others, are most easily propagated by this method. Most Indian and Burmese species of *Dendrobium* having stem-like pseudo-bulbs may be cut into lengths, and laid on any moist substance in a warm position, and they will produce growths from nodes that have not flowered. These, when they commence to emit roots may be put into small pots. Species of *Dendrobium* that do not root so readily should only be cut half-way through between every second joint, otherwise decay may set in and destroy the portions. Hybrids may be treated similarly to the species from which they were obtained. The *New Guinea*, *Australian*, the *D. thyrsiflorum*, and *D. nigro-hirsute* sections of *Dendrobium* can seldom, if ever, be propagated in this manner. Sometimes adventitious growths appear near the apex of the pseudo-bulbs, and these should be allowed to remain until roots appear, when they may be removed and potted. *Thunias* are easily propagated by cutting the old living pseudo-bulbs into short lengths, and inserting them in moist sand, when the new growths will eventually throw out roots. The apical portion of the deciduous *Calanthe pseudo-bulbs* may be treated in like manner. Various species of *Catasetum*, *Cynoches*, and *Mormodes*, may also be increased by this method, though in their case moisture at the base may act as a deterrent.

The Vanda Section of the *Orchid* family cannot be propagated by any regular method, their increase being more the result of chance than calculation. In certain cases, however, strong plants of *Vanda tricolor*, *V. insignis*, *V. suavis*, and a few others having long bare stems, may be notched in a favourable position, and the portion between the notch and the lower leaves encased with moss, and

kept moist to encourage the formation of roots. When these have reached some inches in length, separate the upper portion at the notch and pot it up, leaving the basal portion in the original pot, so that side-growths may occur, which in their turn may also be taken off.

The Genus Phalenopsis furnishes us with a peculiar form of propagation, viz., by young plants which develop on the flower-spikes. To encourage the production of these the spikes should be permitted to remain after the flowers are removed, and in numerous instances young plants will form, which may be taken off when roots have been emitted. *P. Stuartiana* sometimes produces plants from the roots, but so far as my observation has gone, is the only one that does so.

FRUITS UNDER GLASS.

By J. ROBERTS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Peaches and Nectarines.—Where these have been kept moist, and well fed at the roots since the fall of the leaf, and given proper ventilation, there should now be no anxiety about bud-dropping. Steady forcing should result in strong and perfect blossoms. Avoid keeping the buds constantly saturated with moisture, as it tends to encourage too rapid wood-bud development. Freshly-started houses should be kept at a temperature of 45° to 50° with a rise of 10° from sun-heat. Give the borders a dressing of burnt ashes, and wash it well into the border. Houses containing trees in flower must be kept ventilated night and day, to keep the air in motion, as stagnation of atmosphere is fatal to successful fertilisation. Take advantage of bright days to get the pollen into the best condition, and go carefully over the whole of the flowers with a small soft-haired brush. This should be repeated daily until the petals begin to drop. A temperature of 50° to 55° will be suitable during the flowering stage. Any late houses not yet dressed with insecticides should be treated without delay, and all tying and training completed as soon as possible.

Figs.—The cultivation of Figs is steadily increasing; they can be forced in pots with ease and certainty. For very early forcing it is necessary to have bushes that were potted late in summer, and that have got well established in their pots or tubs, before winter. Such plants may be introduced into heat at any time during December, and successions should follow at the present time. The most favourable means for starting Figs is a mild hot-bed of leaves, with a slight admixture of short dung. This should be well blended and sweetened before introducing the Figs. Half-plunge the pots, and keep them in a steady temperature of about 65°. When once started, never allow the plants to suffer for want of water. The best varieties for forcing are Brown Turkey, White Marseilles, and Negro Largo; some of the newer kinds are earlier, and that is all that can be said in their favour. Where there are established houses, the earliest should now be advancing into fruit and growth, and a succession-house may be started. Where the conditions are favourable, a slight hot-bed placed over the roots is a great inducement in developing the young fruits in the earlier stages of growth. Ventilate freely on all favourable occasions, to keep the growths firm and steady. Disbud all useless and badly-placed growths as early as possible.

Propagation of Figs.—The present is the best time for preparing a new stock. Any shoots of last year's growth should be cut into lengths, retaining one eye on each, and these may be inserted singly in small pots, or several in larger ones, putting them just below the surface of the soil. Place them in a steady bottom-heat of 70° to 75°, taking care not to keep them too wet until growth commences.

Cucumbers.—The winter-fruited plants, if not over-cropped, will still yield many fruits. If a little more freedom in the growth is permitted, and a top-dressing of light fibrous loam and leaf-mould given, fresh root-action will be induced. A night temperature of 65° to 70° should be maintained, and advantage taken of every sunny day to change the air in the house. Seed of some approved variety should be sown at once in a bottom-heat of 70°, keeping the young plants well up to the light as soon as they appear. Fermenting materials may also be prepared for planting-time by mixing together half leaves and horse-dung.

Melons.—No time should now be lost in making an early sowing in a bottom-heat not exceeding 75°, as it is a mistake to develop germination too rapidly at this season. A stiff, sturdy-stemmed plant should be the aim. Sow singly in small pots in light fibrous loam, and keep the young plants close to the glass in a night temperature of 70°. A good selection of Hero of Lookinge and Crump's Blenheim Orange are good types for early work.

PLANTS UNDER GLASS.

By T. EDWARDS, Plant Foreman, Royal Gardens, Frogmore.

Fuchsias.—Plants struck in the autumn should now be moved into 5-inch pots, using a compost of three parts good fibrous loam and one part decayed manure, with a good sprinkling of sand; pot firmly, and encourage sturdy growth by placing the plants near to the glass in a warm house. Such varieties as Lady Heytesbury do not require stopping; if well grown, and fed later with liquid-manure, they will form perfect pyramids of bloom in May and June. Stock plants may now be cut into shape and watered. Syringing twice a day will assist them to break uniformly; when the shoots are just beginning to burst into leaf, the plants should be shaken out and repotted.

Cape Pelargoniums will also require to be potted, using similar compost as for Fuchsias, but cooler treatment is necessary, and air at all times. Some stopping of shoots may be needful, and an occasional fumigation, to prevent aphids. So much indoor decoration is now required, that large, formally-trained plants are seldom grown; but well-grown, bushy Pelargoniums are always bright and effective. Early varieties should be moved to warm pits, 50° to 55° night temperature.

Primulas and Cinerarias advancing to bloom will be much improved in flower and colour of foliage if watered with weak guano and soot-water. The same stimulant will suit Freesias, which will require a neat stake for each bulb, so that the flower-spikes may be trained straightly.

Stove Plants.—Gardenias for winter-flowering are best grown in pots, and a fresh stock raised annually from cuttings. They should flower in 6-inch pots; if rooted early and stopped occasionally to ensure compact habit, young plants give larger flowers and better stems for cutting than old ones. They require a brisk heat—70° night temperature—to bring them into flower in January. As soon as the bud is formed, pinch out the shoots; if these are left to grow, the buds frequently become blind. For later flowering, plants put out in a bed will produce blooms in large quantities during April and May. A compost of equal parts of loam and peat, with a sprinkling of sand, suits the Gardenia well. Top-dress after the second year, and replant after the third. Codieums (Crotons), Cordylines (Dracenas), &c., that have been previously rooted, and are ready for potting, may be shifted on, and kept in a strong heat with atmospheric moisture. The earliest Tuberoses should now be started in 5-inch pots, using light sandy soil. Place the bulb about half its depth in the soil, and plunge in bottom-heat in the forcing-house; water once only, and no more will be required until the roots become active, and growth has commenced.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain HOLPOED, Westonbirt, Tetbury, Gloucestershire.

Horseradish.—Evenly-shaped roots can only be produced by cultivation. Lift the roots now, and select the strongest for use. Tie them in bundles and cover them with soil or sand, or they may be laid in trenches under a north wall. The smaller roots from six to nine inches long will be required for planting. Well trench the soil, and pick out all small roots. Trench again and add some well-decomposed farmyard manure at the bottom. When the soil has become settled it may be firmly trodden down, and the selected small roots dibbled in deeply at about one foot apart.

Artichokes (Jerusalem).—To obtain tubers of good size it is essential that they be lifted annually and the largest selected for use. If these be stored in moist sand or pitted in the open to exclude the air, they will keep fresh for a long time. The tubers next in size may be retained for seed. If required to be grown in the same position the soil should be deeply trenched, cleaned, and manured, and after allowing the ground to settle, the tubers

should be dibbled in, in rows 2 feet wide, allowing a distance of 9 inches between each set, and inserting them about 5 inches in the soil. Sutton's White is a great improvement on the old purple variety, both in productiveness and flavour, the tubers being also well shaped, pure white in colour, and having fewer eyes.

Artichokes (Globe).—These are less hardy, and require protection during the winter months. If straw or litter has been placed round the crowns, an examination should be made to see whether rain has penetrated it, and if there are signs of decay it should be removed during dry weather, and some fresh straw placed in its stead.

Rhubarb.—This vegetable is always in demand at this season of the year. It is easily forced, and the largest sticks may be obtained if strong roots of from two to three years' growth are available. Rhubarb may be forced in the open ground, just as was advised last week in the case of Seakale. A good crop may be ensured, however, if it is cultivated in a Mushroom-house, or similar structure, where a fairly even temperature between 55° and 60° may be maintained. Crowns of the smaller and earlier-growing varieties, such as Champagne, Early Scarlet, Royal Albert, and Kelway's Queen, may now be lifted and placed in their forcing quarters, working some leaf-mould or other light soil between the roots. Occasional waterings with tepid water will be necessary.

THE FLOWER GARDEN.

By J. BENBOW, Gardener to the Earl of Ilchester, Abbotsbury Castle, Dorset.

Hardy Fern and Alpine Rock Garden.—Remove decayed foliage from the crowns of choice dwarf plants, and give them a top dressing of the best leaf-mould and sand. To prevent grubs and other troublesome pests, use finely-ground glass. Cork refuse is also suitable for such use in the rockery. Loosen the soil during mild weather with a small hand-fork.

Frost and Snow.—Every precaution should be taken to provide against frost and snow. Have mats in readiness, and plenty of bracken, which is still one of the best natural coverings we have. Wreaths of twisted bracken are invaluable for binding round tender plants and shrubs. A number of props should be ready for shaking snow from Coniferous trees, &c., and for leaving as supports during the night.

Bamboo Dell.—If the Bamboos have been planted on the sunny side of the dell, they will be partly screened from cold winds; but if the clumps have assumed good dimensions, stout stakes and cord will be needed to support them. Strong east winds or snow browns the foliage of these plants. Small sugar-tubs make the best protections for young plants and choice species by covering them completely over. The same treatment can be given many half-hardy plants during severe frost.

Rhododendrons, Camellias, and Azaleas.—In localities where these are growing outside, tiffany is useful to cover the early buds, which are very prominent this year; Rhododendrons Nobleanum, præcox, and ciliatum; Camellia japonica and Azalea indica are worth a little extra care. Azaleas, if nipped in the bud rarely open perfectly.

Bulb Garden.—Anemones and Ranunculus should be planted during genial weather. A sunny, well drained position suits them best, and they need a deep and good loamy soil, enriched with plenty of well-rotted cow-manure, and a little sand and soot. When the beds are ready, plant the bulbs rather closely together, and 2 to 3 inches deep. The rarer kinds of the bulbous section of Irises, viz., Bakeriana, Danfordi, Histris, Rosenbachiana, are fast approaching their flowering stage, and the most useful Iris stylosa is now in full blossom. The flower-spikes, as they appear, should be given neat stakes to support them during boisterous weather. A sharp look-out is necessary, for slugs are their worst enemy; they eat off the spikes as soon as they have appeared, unless great vigilance is exercised.

The Shrubberies.—Those intending to make new or add to or re-arrange ornamental shrubberies should lose no time in commencing the work. The weather being damp, and free from much frost, the taking up and relaying of turf in conjunction with digging may proceed apace.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, JAN. 16.—Annual Meeting of the National Dahlia Society.
THURSDAY, JAN. 18.—Linnean Society, Meeting.

SALES.

MONDAY, JAN. 15.—Dutch Bulbs, Roses, Greenhouse Plants, &c., at Protheroe & Morris' Rooms.
WEDNESDAY, JAN. 17.—Japanese Lilies, Tuberoses, Palm-seeds, Continental Plants, Lily of the Valley Crowns, &c., at Protheroe & Morris' Rooms. Fruit Tree, Roses, Pearl Tuberoses, Arancaria excelsa, at Stevens' Rooms.
THURSDAY, JAN. 18.—Roses and Lilliums from Japan, and Herbaceous Plants, at Stevens' Rooms.
FRIDAY, JAN. 19.—Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—36°.

ACTUAL TEMPERATURES:—

LONDON.—January 10 (6 P.M.): Max. 47°; Min. 38°—
January 11: Light frost; dull.
PROVINCIA.—January 10 (6 P.M.): Max. 47°, S.W. Ireland; Min. 37°, N.E. Scotland.

At this season of the year many of the committees and officials having the management of flower-shows will be busy concocting their schedules and formulating the regulations for the shows to be held in the autumn or summer. They cannot be too particular. The greater part of the protests that are raised, and of the dissatisfaction that is occasionally felt, is due to the faulty or ambiguous wording of the schedules. It is, we take it, the duty of the judges to follow the text of the schedule as far as possible, even if it lands them in absurdities. Their duty is to follow the schedule, as a compositor follows "copy," but to call the attention of the committee to the difficulty immediately, in order that the matter may, if possible, be set right before a final decision is given. The responsible persons are the members of the committee, and they should not endeavour to fasten undue responsibility on the judges. The judges, paid or unpaid, are the servants of the committee, for the time being, and they must follow out the behests of the committee as set forth in the schedule. If they are to judge properly they should not be hindered in their work by having to discuss disputed points in the schedule.

It is a frequent practice to refer disputed cases to the editor of one or other of the horticultural papers. For ourselves, we find this practice objectionable, because in most cases we can have no first-hand knowledge of the details at issue; and next, we have quite enough to do with our legitimate business without losing time in arbitrating in matters beyond our limitations. We take, by way of illustration, three questions from a number that were submitted to us last season:—"Are Ferns foliage plants?—that is, can they be included in the same classes as what are known as 'foliage plants?'" Our answer was in the affirmative, because Ferns are grown mainly as "foliage plants," and the schedule said nothing to the contrary.

Another question was, "Can bulbous plants, such as *Lilium auratum*, be shown in collections

of herbaceous plants?"—a very difficult question to decide satisfactorily, because, although a bulb is truly a herbaceous plant, it is in catalogues generally included in a distinct group. This difficulty, at least, might readily be met by schedule-makers, who, when devising their classes, have only to specify herbaceous plants—bulbous plants excluded or included as they may prefer.

Here, too, is a difficult question to decide in a hot tent, and, indeed, not much easier in a cool room: "Is *Centaurea Cyanus* admissible in collections of wild plants?" The answer, we take it, is "No," for the plant in question is reckoned by most, if not all, botanists as a cornfield-weed. Most collectors and wild-flower gatherers, we imagine, would not be so particular, but would class it among wild flowers.

But such questions as these few as compared with those that arise from the exceedingly loose way in which the majority of us still speak and write in ordinary language of botanical sub-divisions. Orders, families, classes, sections, tribes, genera, species, varieties, kinds, are used indiscriminately, without thought, as if they were synonymous or interchangeable. Even at the fountain-head in the "Rules for Judging" we find "species" entirely omitted! and all "natural genera spoken of as kinds," and "all variations within a genus as varieties." Of course, if the Royal Horticultural Society arbitrarily lays down the rules to be followed we must conform till a fair opportunity occurs of inducing the society to alter so singular a pronouncement. In the same document compiled for the use of judges and schedule-makers we find Peaches, Nectarines, Apples, and Plums, called, "for exhibition purposes," distinct "kinds" of fruit, as everyone will admit, but surely Apples are so widely different that the distinction here is more than is implied by the word "kind."

Then we find Cabbages, Kales, Savoys, Brussels Sprouts called distinct "kinds" of vegetables, though it is, we suppose, certain that they are all descendants from the same stock. We have, however, to do with the actual, rather than the historical, and we should not have called attention to the matter were it not for the fact that after calling Cabbages, &c., "kinds," a few lines lower down they are spoken of as the "Cabbage tribe," and on p. 17 there is a note on the "Cabbage family"; while similar variations in Peaches, Roses, Peas, are called "varieties," so that "families," "kinds," "tribes," and "varieties" are all used to connote the same amount of difference. Obviously, this is not what the compilers of the rules for judging meant to do.

Other illustrations of the confusion that arises from ignoring the relative degrees or ranks among plants may be cited from the same publication. "Collection of twelve dishes of ripe fruit, not less [fewer] than six kinds, nor more than two varieties of a kind"; p. 1. Here, the word "species" would be preferable to kind. The six species might be Grapes, Peaches, Melons, Strawberries, Figs, Pines, or otherwise. "Collection of six distinct kinds of vegetables; only one of the Cabbage tribe may be included." Here we should prefer "varieties" to "kinds"; while the word "tribe" should give place to "species," because tribe has a distinct botanical signification, below an order and above a genus, and to use it, as is done in this code, is as if we were to call a corporal a major-general, or an islet a continent.

The only way out of the entanglement is to

follow the plan adopted by all or, at least, the great majority of botanists, a plan laid down by LINNÆUS, modified by the elder DE CANDOLLE, and adopted at the Paris Congress of Botanists. This is based upon the following considerations, well known by botanists, but which are not sufficiently heeded by gardeners.

All recognised "species" have a name. That name is two-fold, one half of it being generic, the other specific: thus *Brassica oleracea* is the name for the Cabbage species.

If the distinctions in a particular plant be not sufficiently great, in the judgment of botanists, to warrant a specific name being given, the plant is not registered; or, if registered, it is only so as a "variety," a "sub-variety" of a species, and so on.

Few persons should be better judges of what constitutes a species than the gardeners, at any rate, where cultivated plants are concerned.

Leaving scientific considerations on one side, and dealing with the matter solely from the point of view of practice and convenience, it may be said that any plant or group of plants deemed sufficiently distinct to have a separate specific name is a "species," as above described. If the distinctions are not constant or less prominent, a "varietal" name may be given.

It may be said that one man will be of one opinion, one of another, and that therefore there will be no fixity about these names. That is quite true; there is no absolute fixity about the plants or about the species, and therefore an arbitrary limitation has to be drawn by the botanist.

A "species," though made up of an aggregate of individual plants, may be taken as the unit. It consists of all those individual plants which are so much alike that they are known, or may reasonably be assumed to have descended from the same parentage, and which will transmit their characteristics more or less completely to their descendants. Thus, all the garden forms of Cabbage belong to the genus *Brassica* and to the species *oleracea*. Other specific units go to make up the Radish genus (*Raphanus*), or the Seakale genus (*Crambe*), and so on. All these genera we have mentioned are very much alike in their flowers and fruits and seed, and are probably descendants of the same stock, so they are included in the same Order *Cruciferae*.

The specific units may thus be aggregated: into, first, genera, and then into numerous groups of gradually increasing degrees of importance.

On the contrary, the specific unit may be divided into fractions. Varieties are, as it were, fractions of a species. Or it is permissible to liken the "species" to the unit placed to the left of the decimal point—1°, whilst the varieties would be placed to the right of it, according to their relative degree of importance—1°9876.

All this is very elementary, and as interesting as a page from a text-book, but it is absolutely essential that the principle be firmly grasped and well understood before attempting to apply it in practice.

In paragraph 3 of the code, we have the difficulty raised about "kinds" and "varieties." This might be got over by abolishing the word "kind" altogether in official documents. "Variety" in botany has a distinct signification and a distinct place in the hierarchy as a sub-division of a species; "kind" has none. "Peaches and Nectarines" are, therefore, varieties of a species. Apples are varieties of another species and of another genus. Plums

are varieties belonging to still another species and still another genus.

Peas are varieties of one species; Cabbages, Kales, Savoy, Brussels Sprouts, are all variations from one species; though spoken of in the code sometimes as a "tribe," sometimes as a "family!" as if we were to speak of a company of soldiers as a brigade or even an army-corps. Carrots are all varieties of *Daucus Carota*; Broad Beans of *Faba vulgaris*; Kidney Beans belong to an entirely different genus, and are varieties of a separate species. Roses, Chrysanthemums, and Phloxes, are respectively varieties of various species. In these cases there is no need in the schedules for the word "kind," as the term variety covers them all.

to their relative rank which we have endeavoured to mark by differences of type. The "species" is, here, the pivot upon which everything depends: to the left are the higher, more comprehensive groups, to the right are the subdivisions or fractions of a species. To further illustrate the matter, we may add the following example:—Order, Vitaceæ; genus, *Vitis*; species, *vinifera*; varieties, Black Hamburg, Muscat of Alexandria, and so on; or—

Order, Cruciferae; genus, *Brassica*; species, *oleracea*; varieties, Savoy, Cauliflowers, Kales, &c.

Further sub-division into sub-varieties, variations, &c., might readily be made if requisite.

We feel an apology is due for entering on

nificant Oak, illustrated by a supplement to the *Gardeners' Chronicle*, March 18, 1899. This Oak grows on the estate of Brynderwen, near Usk, Monmouthshire, and the measurements of the tree are—Circumference of bole at ground-level, 51 feet; trunk at 4 feet from the ground, 22 feet; at gnarled parting of boughs from the trunk 6 feet 6 inches from the ground, 35 feet. General GILLESPIE was very proud of this fine tree. The estate of Brynderwen ("Oak-on-the-Hill") is still the residence of deceased's widow.

MRS. W. PAUL.—The many friends of Mr. WILLIAM PAUL, of Waltham Cross, will deeply sympathise with him on the death of his wife, who died at Waltham Cross on the 7th inst., in the sixty-seventh year of her age.



FIG. 7.—VIEW IN THE GARDEN OF EILENROC, NEAR ANTIBES, THE PROPERTY OF MR. WYLLIE. (SEE P. 27.)

In other instances the limitations should be of a wider character, as in the class mentioned on p. 35, "twelve bunches of Hardy Flowers, distinct kinds, or distinct varieties." In such a case, if "variety" be used, it might, and we think, rightly, be taken to mean "distinct varieties of one species, so that a dozen Michaelmas Daisies might be shown, when the intention of the schedule-framer was probably to ask for bunches of different flowers.

DE CANDOLLE the younger admits of twenty degrees or ranks, which is more than enough for ordinary purposes. The following will probably suffice for the schedule-maker:—

ORDER. GENUS. SPECIES. VARIETY. Variation.

For exhibition purposes this is probably sufficient, always provided that they be not used promiscuously, but always with due regard

these banalities; but if the reader will open the first flower-show schedule he comes to, he will probably see that it is high time a protest was made about the laxity and carelessness with which they are worded.

MRS. MOORE.—We regret to have to record the death of Mrs. MOORE, the wife of the sub-editor of this journal, who died at Fulham, on the 3rd inst., in the sixty-second year of her age.

MR. HARRY VEITCH.—We understand that Mr. and Mrs. H. J. VEITCH are about to leave for a lengthened tour in Egypt and the Holy Land. Their numerous friends will cordially wish them a pleasant trip.

MAJOR-GENERAL GILLESPIE, whose death was announced recently, was the owner of the mag-

MR. H. V. MACHIN is spoken of in the *Rosarians' Year Book* as the largest amateur, and one of the most successful Rose-growers. He has about 40,000 plants, in addition to "garden Roses." He has won a first place 265 times in ten years, and twenty-four Medals for the best Rose, besides hundreds of other distinctions.

HORTICULTURAL EXHIBITIONS AT ANTWERP.—The Royal Horticultural and Agricultural Society of Antwerp has forwarded particulars of exhibitions to be held by them during the present year. Of these the earlier (the 170th exhibition arranged by the Society), will take place from July 28 to July 31, in the Palais des Fêtes of the Royal Zoological Society, and will be devoted to flowering and foliage plants, exotic Orchids, cut-flowers, and floral decorations. The 171st of the Society's exhibitions will be open, in the same locality, on November 10 to November 12, and will include

Chrysanthemums, flowering and foliage plants, floral decorations, and fruit. These exhibitions are under the presidency of Baron Ed. OSY; the secretary is M. ANATOLE DE COCK. Exhibitors must be members of the Society as regards almost all the sections, a few only of those at the November exhibition being open to outsiders. Programmes and particulars are procurable from the secretary, and would-be exhibitors must signify their intentions to him (addressed to 9, Longue Rue de l'Hôpital, Antwerp), six days before the opening of the exhibitions.

THE FRENCH HORTICULTURAL SOCIETY OF LONDON will hold its annual dinner on Saturday, the 13th inst., at the Imperial Restaurant, Strand. The French Minister will occupy the chair.

"BOTANICAL MAGAZINE."—The January number opens with a good figure of the extraordinary *Coryanthes maculata*, which flowered at Kew in May, 1899, tab. 7692. It is a native of Guiana.

Haylockia pusilla, tab. 7693, is a *Crocus*-like plant, but having six stamens and an inferior ovary; it is a true *Amaryllid*. It is a native of Uruguay.

Macleania insignis, tab. 7694, is a Mexican *Vacciniad* with stiff, scaly, robust, ovate, sessile leaves, and tufts of tubular orange-scarlet flowers about 1 inch in length. The limb of the corolla is shortly five-lobed, and the calyx is truncated and five-winged, about $\frac{1}{2}$ -inch long. Botanic Garden, Cambridge.

Dioscorea juncea, tab. 7695. — A *Verbenaceae* shrub of loose, branching habit, with glabrous, opposite, or verticillate branches, and small sessile, oblong, toothed leaves. The flowers are in close, many-flowered racemes at the end of the short shoots. The corolla-tube is about $\frac{1}{2}$ -inch long, curved, pale violet, with a spreading five-lobed limb. It is a native of Chile, and is hardy at Kew.

Rhododendron arboreum Kingianum, tab. 7696. — See *Gardeners' Chronicle*, 1899, ii., p. 306, f. 102.

"THE ROSARIANS' YEAR-BOOK" opens with a portrait and a note on the rosarian career of Mr. H. V. MACHIN. Rev. J. H. PEMBERTON discourses on new Roses; the Gold Medal Roses were Ulster, H. P.; Beattie Brown, H. T.; Mrs. Edward Mawley, T. (all from Messrs. DICKSON & SONS); Mrs. Cocker, H. P. (COCKER); Sunrise, T. (PIPER), figured in the *Gardeners' Chronicle*. Mr. GEORGE PAUL has some interesting reminiscences about planting and pruning garden Roses. Mr. MAWLEY's sketch on the weather of the past Rose-year is, as usual, a summary which will be useful to very many besides rosarians.

ROYAL HORTICULTURAL SOCIETY.—That the meeting on the 9th inst. should be small, and thinly attended, can be no matter for surprise. We cannot therefore wonder at the request sent up to the Council from the Floral and the Fruit Committees, that at this season of the year the meetings should be monthly instead of fortnightly. If Orchids, or some exceptionally interesting plant happens to bloom, it might still be exhibited on the alternate Tuesdays in the Lindley Library, and the members of the Committees would be spared the trouble and expense of coming to adjudicate upon nothing.

THE CHARTER OF THE ROYAL HORTICULTURAL SOCIETY.—We are informed that the new Charter has received the Queen's assent, and has been signed by Her Majesty.

ASPARAGUS.—A writer in the *Revue Horticole*, commenting on the vast quantities of Asparagus imported from France and Spain, goes on to tell his readers that the cultivation of Asparagus, forced or otherwise, is à peu près nulle in England. We should say, on the contrary, that there is scarcely a kitchen-garden in the country without its Asparagus-bed, and we think if the writer could see the enormous quantities that arrive in the

market during the season from Colchester, Evesham, Sandwich, and other centres, he would no longer say that there was scarcely any Asparagus grown in this country! The writer again tells us that the Argenteuil Asparagus, with thick white "sticks," with a short rose-coloured or violet tip, is not sold in London. It is sold in London, but at exorbitant prices. It is not in popular use, because our people so greatly prefer the English green Asparagus. It is a matter of taste, of course, but we think the preference of our countrymen amply justified. True, the Argenteuil Asparagus requires a different method of cooking.

STOCK-TAKING: DECEMBER.—The Exchequer accounts for the nine months just closed show how great has been the recovery in trade during that period; the figures for the past twelve months relating to the trade of the country are also most encouraging, though it cannot be denied that war has a way of disarranging both imports and exports. The Board of Trade Returns for the month of December and for the year thus closed, may be very briefly reviewed. The imports for the month foot up at £40,738,876, against £45,364,786 for the same term in 1898, showing a loss of £4,625,890, which may be placed to the account of reduced values and quantities in food and drink imported, and to a large fall in the imports of materials for the manufacture of textile fabrics. In the food supplies a large reduction will be found in fruits, &c. The following extracts from the Summary Table of Imports show some of the decreases:—

IMPORTS.	1898.	1899.	Difference.
	£	£	£
Total value ...	45,364,786	40,738,876	-4,625,890
(A.) Articles of food and drink—duty free ...	16,008,989	14,806,872	-1,097,117
(B.) Articles of food & drink—dutiable	2,364,590	2,261,477	-103,113
Raw materials for textile manufactures ...	9,598,105	6,645,632	-2,947,473
Raw materials for sundry industries and manufactures	4,090,759	4,854,849	+264,090
(A.) Miscellaneous articles ...	1,575,364	1,446,872	-128,492
(B.) Parcel Post ...	77,885	75,399	-2,486

It is worth mentioning here that the Commercial Intelligence Department is now at the service of anyone engaged in business. It has an office in Parliament Street, Westminster. This promises to be of vast importance to both traders and manufacturers, and has long been a necessity.

As to the supply of fruits, roots, and vegetables, we take from the mass of figures those herewith appended:—

IMPORTS.	1898.	1899.	Difference.
Fruits, raw:—			
Almonds ... cwt.	16,876	12,639	-4,237
Apples ... bush.	642,278	560,414	-81,864
Grapes ... "	13,303	7,916	-5,389
Lemons ... "	223,481	170,960	-52,515
Oranges ... "	2,231,712	1,443,814	-787,898
Pears ... "	18,931	13,673	-5,258
Plums ... "	338	...	+338
Unenumerated ... "	80,520	95,161	+14,641
Roots and Vegetables:—			
Onions ... bush.	494,379	535,718	+41,339
Potatoes ... cwt.	75,354	221,670	+146,316
Vegetables, raw, unenumerated ... value	£124,601	£95,210	-£29,391

Vegetables, it will be seen, supply the "plus" quantities. The value of the imports for the year is placed at £485,075,514, as against £470,378,583, or a difference in favour of 1899 amounting to £14,696,931. Possibly, had trade begun its upward

movement earlier in the year, the figures would have been much nearer £500,000,000. The

EXPORTS

for the month of December are placed at £22,038,489, as against £20,978,408 in December of 1898—an increase of £1,060,081. The subjects of increase are in raw material, metals and manufactures therefrom, and new ships. The year's figures are £264,660,647, against £233,359,240 in 1898, or a gain of £31,301,407. With these cheering figures we leave the double entry of stock-taking.

CYTISUS SCHIPKAENSIS is the name of a dwarf shrub, with trifoliate leaves, and heads of white flowers. It is by some considered to be a variety of *C. leucanthus*. A figure is given in the current number of the *Revue Horticole*.

"THE GARDEN."—The first number of the new series, edited by Miss JEKYLL and Mr. COOK, is before us. It retains its old form, and even more of its elegance. The paper is too highly glazed to be agreeable, but it certainly gives light and life to the illustrations, and brings up the type with great distinctness. The preface recalls the work which Mr. ROBINSON has done in scotching the bedding-out craze, and promises to "strengthen all *The Garden's* good traditions." The Dean of ROCHESTER gives the new series a sympathetic send-off, as he did in the first number of the former series. For the rest, the articles are of the usual type, which is not to be wondered at, seeing that the writers are now for the most part the same in all the papers. The old-fashioned loyalty is not understood, and is a thing of the past. The illustrations are excellent, that representing the Water-buttercup in a meadow-stream, though having little reference to horticulture, is very beautiful as a picture. Mr. MOON's representation of Violets show the vast difference between the point of view of the artist and of the gardener and botanist. Fit tribute is paid to the work of Mr. G. F. WILSON, but the writer has omitted to say that Mr. WILSON fought hard for the guinea subscription to the Royal Horticultural Society, which has since been adopted with such conspicuous success. Coloured plates will be given, not weekly, but when there is occasion for them. We may be allowed to offer our congratulations on the appearance of the new series under such good auspices.

A CRIMSON MADAME CARNOT CHRYSANTHEMUM!—It has not seemed probable that this large and popular Chrysanthemum would give a sport having crimson flowers. But we are informed that the stock has been purchased by Messrs. WELLS & Co., of Earlswood, Surrey, of a variety that is described as such. There seems little doubt but the flowers are crimson, and the foliage is very nearly alike to that of Madame Carnot, but whether it will prove to be an actual sport remains to be seen. If this is so, we should be interested to hear if the original white-flowered variety, or one of the yellow forms, sported crimson.

"THE HORTICULTURAL DIRECTORY AND YEAR BOOK FOR 1900" is a most useful publication. Besides the value it has as an address-book for horticulturists generally, the forty-first edition contains a large number of "useful garden receipts," and much information a gardener is likely to need. It is published at 1s., at *The Journal of Horticulture* Office, 12, Mitre Court Chambers, Fleet Street, London.

"FRUIT FARMING FOR PROFIT."—By GEORGE BUNYARD (Maidstone: W. S. VIVISH, 28, King Street). This is the fourth edition, revised to 1900, of a "practical treatise embracing chapters on all the most profitable fruits, with detailed instructions for successful culture on the Kent system." There is certainly no one better qualified by practical experience to write such a book as this than Mr. BUNYARD, and the proof of this is the success achieved by the previous editions of it. The volume before us will no doubt meet with an

equal welcome from all interested in fruit-farming and in fruit-growing on a smaller scale. The author begins with such primary matters as soil, shelter, planting, and pruning; going on to the consideration of each kind of fruit, the merits and demerits of old and new varieties, &c.; and concludes with chapters on packing, gathering, and storing, prices and profits, labelling and insects, diseases and enemies.

THE STORY OF ATTALEA PRINCEPS.—In *Unwin's Chap-book for 1899—1900* (T. FISHER UNWIN, Paternoster Square), is an allegory called "Attalea princeps," written by GARSHINE, and translated by F. L. VOYNICH. The story tells of a noble Palm, impatient of its glassy prison in the conservatory of a botanical garden, and growing in its pride and dissatisfaction to such a height, that it at last succeeded in breaking the glass, and towering up into the cold, foggy air of autumn. The result may be imagined. The order went forth that the tree should be cut down. "We

bution in the following spring; (2) Varieties which are exhibited with a distinctive name, together with the name of the introducer or raiser, the names of such varieties to be retained as their future distinctive appellation."

TOO LATE FOR ALMANAC!—The annual exhibition for 1900 of the Royal Horticultural Society of Aberdeen will be held in the Duthie Park on August 16, 17, and 18.

CYCLOPEDIA OF AMERICAN HORTICULTURE.—This monumental work, edited by Professor BAILEY, said to be the most comprehensive review of the vegetable world, is now in the press. Though distinctly an American work, not only plants indigenous to the North American continent are mentioned, but also all the species known to be in the horticultural trade in North America, of whatever origin. It is really a survey of the cultivated plants of the world. Prof. BAILEY takes the view that a subject of commercial importance, one

feature of the *Cyclopædia of American Horticulture* is its wealth of bibliographic reference. The world's horticultural literature has been thoroughly searched, and most carefully indexed, so that the student will find citations to every available article or illustration upon any subject consulted. The *Cyclopædia of American Horticulture* is to be completed in four handsome quarto volumes, embracing about two thousand pages, with more than that number of original illustrations. It is carefully printed upon specially made paper of a permanent character. The first volume will be ready in January, and the work will be completed during the year. The book is sold only by subscription, and orders will be accepted for the full set only. Terms and further information may be had of the publishers, the MACMILLAN COMPANY, No. 66, Fifth Avenue, New York.

THE INVISIBLE ENEMY.—Further illustration of the invisibility of the enemy to which a war correspondent made reference in the letter published recently in one of the daily papers is furnished in a letter from an officer in Lord METHUEN's force, printed in the *Evening News*: "... And so your Chrysanthemums are out. I wish I could see them. You may think my taste strange, but I would rather see one of your prize Chrysanthemums than all the Boers in Africa. Perhaps you think it is easy to see a Boer, but it isn't. We have fought four tolerably big battles against them, but few of us have seen a single Boer. He is the invisible enemy. He lies in the grass, deep down in a trench, or behind a rock, and spits death at us all day long, but we never see who is killing our men."

SELBORNE WINTER LECTURES.—The Selborne Society has made a new departure by arranging a series of monthly lectures, which it is hoped the members will heartily support. The second lecture will take place at the Luncheon Society's Room at Burlington House, W., on Tuesday, January 16, at 8.30 P.M. The subject will be "Man's First Contact with Nature," by Professor G. S. BOULGER, F.L.S., F.G.S. The February lecture will, it is hoped, be the one promised some months ago by the Hon. J. SCOTT MONTAGU, M.P., on "South African Fauna and Flora;" and the March lecture one by Dr. LUBBOCK.

PUBLICATIONS RECEIVED.—*Queensland Agricultural Journal*, November, 1899.—*The Canadian Horticulturist*, Dec., 1899.—*The Weekly Florists' Review* (Chicago and New York), December 14.—*Gardening* (Chicago), December 15.—*American Gardening* (New York), December 9, 1899.—*The Century Book of Gardening*, Part 18.—*Agricultural Journal*, Cape of Good Hope, November 23 and December 7.—*University of Tennessee, Agricultural Experiment Station*, vol. xl, No. 1, April, 1899. *Persimmon*, by K. L. WATTS.—*University of Tennessee Record*, April, 1899, IX., contains: Historical sketch of the University, Courses of Instruction, &c.—*Annales Agronomiques* (Masson & Cie., 120, Boulevard St. Germain, Paris), Dec. 23, contains articles on: Absorption par les plantes de quelques sels solubles, by M. Em. DEMOUSSY; and La Section d'Agronomie au Congrès de Boulogne-sur-Mer, by M. MALPEAUX.—*A Botter and Diary*, from the Anglo-Continental (late Ohlen-dorff's) Gunpowder Works, 80, Mark Lane, E.C.—*Southern Counties Carnation Society*, second annual Report and schedule of prizes to be offered at the exhibition to be held in 1900.—*Torquay District Gardeners' Association*, Report and Balance-sheet for 1899, and prize-lists for the spring show to be held on March 21, 1900, and for the Chrysanthemum show to be held on October 31, 1900.

THE GARDEN AT EILENROC, NEAR ANTIBES.

NEAR Antibes, at the very extremity of the Cape that divides the ancient military city from the beautiful Golfe Juan, is to be found one of the most beautiful gardens that I have ever seen. It is situated at the western extremity of the Cape, the white rocks of which, jutting into the deep, blue sea, have been converted into a rock-garden of great beauty. This garden was visited by the Société de Horticulture of Cannes, which reported most favourably upon it; indeed it is unrivalled even by the botanical garden at La Mortola, which is quite differently arranged.



FIG. 8.—ROCK GARDEN AT EILENROC, NEAR ANTIBES.

might build a special dome over it," said the Director, "but how long would that last? . . . And besides, that would cost too dear." So the Attalea, which was misunderstood in its life, and which knew and resented the fact, fell a victim to ambition and home-sickness, drawing to destruction with it the "little weed" that had been its only faithful friend and companion. Fortunately for hard-hearted directors and gardeners such a botanical specimen is rare, if not unique, in its conduct.

"PUNCH."—This journal is in more senses than one a contemporary, for it appeared in the same year as that in which the *Gardeners' Chronicle* was first issued. In its new guise, and with its additional attractions, we wish it all the success it deserves. We can do no more.

NATIONAL DAHLIA SOCIETY.—Mr. HUDSON informs us that the annual meeting will be held at the Horticultural Club Room, Hotel Windsor, on Tuesday next, January 16, at 2 P.M. In addition to the usual agenda, notice has been given that the following new rule will be proposed:—"No new Dahlias shall be exhibited in competition in any class except:—(1) Varieties which are already in commerce, or are already advertised for distri-

which engages the attention and affects the livelihood of thousands of bright people, is decidedly worthy the investigation of the trained botanist. In the *Cyclopædia of American Horticulture*, therefore, very full accounts are given of the botanical features of all important commercial plants, as the Apple, Cabbage, Rose, &c. At the same time, practical cultivators submit observations upon culture, marketing, and the like, and frequently two opinions are presented upon the same subject from different localities, so that the reader may have before him not only complete botanical information, but very fully the best practice in the most favourable localities for the perfection of any fruit or vegetable or economic plant. The contributors are men eminent as cultivators or as specialists on the various subjects. The important articles are signed, and it is expected that the complete work will include fully 5,000 signed contributions by horticulturists, cultivators, and botanists. The arrangement is alphabetical as to the genera, but systematic in the species. A very simple but complete plan of key-letters is used, and the whole arrangement is toward ease of reference as well as completeness of information. To each large genus there is a separate alphabetic index. A special

Both are wonderfully beautiful and interesting, and both belong to Englishmen, who are courteous enough to admit visitors to see them.

Eilenroc has an area of 15 hectares, and an environment of rocks. In addition, there are 15 hectares of Pine-woods (the Croë Woods) included in the estate. Eilenroc has belonged to Mr. Wyllie since 1873, when he acquired part of it from Mr. Loudon, a Dutch gentleman, who had begun a plantation of Pine. At that time the present garden was a wilderness, overgrown with *Cistus*, *Lentisc*, and brushwood.

On January 1, 1883, Mr. Wyllie engaged a Swiss gardener, M. Ringiusen, who entirely transformed the place, and who is still at his post, improving, enlarging, and embellishing the whole. On his arrival at Eilenroc, M. Ringiusen cut paths, made plantations, and above all began to make use of the splendid natural rocks then considered inaccessible, but which now are traversed with a perfect network of paths and steps. It is this feature that gives uniqueness to the ground. These splendid rocks are in themselves wave-washed and barred, ranged round the villa like a rampart, 140 feet high, with a flower garden on the summit. M. Ringiusen has made in it a labyrinth of paths; easy steps are cut between the fissures and grottos, scaling the roughest crags, and leading from the sea-coast to the terrace, and thence all along and up and down the rocks past many points of view whence on clear days Corsica is visible.

In all the cliffs rising out of the sea, in all the fissures and clefts of the rock, are varied and interesting plants. The local rock-flora has been utilised largely, especially as regards decorative and ornamental species. *Euphorbia dendroides* rears its curious and massive heads, shading the elegant *Cistus*, *Coris monspeliensis*, *Statice*, *Convolvulus althæoides*, &c. And to all these the gardener has added specimens of Australian and Southern Africa, numerous *Polygalas*, *Acacias*, *Aloes*, and so on, and also American *Cacti*, *Agave*, and *Scilla peruviana*. At the time of my visit (March) the rocks were bright with *Crocus versicolor*.

And then, specially protected, is the very rare *Scolopendrium of Antibes*, *S. Hemionitis*. I was much pleased to see its plain, straight fronds, the base of which is cut into two large hanging ears, the blade of which is almost triangular in places. If the rocks form a frame, the picture within it represents a beautiful garden, well planted and maintained. Rare and fine *Palms*, good collections of succulent plants of New Zealand or Australian species, pretty borders and clumps of annuals, and a wonderful collection of such shrubs as will stand the climate; all these form a delightful and interesting whole.

The proprietor of the garden opens it to visitors on Tuesdays and Fridays, charging a franc for admission, which amounts to a large sum every year, and is devoted to a charitable purpose. *H. Correvon, Geneva.*

ENQUIRIES.

ENCOURAGING BIRDS TO BUILD.—Would any reader of the *Gardeners' Chronicle*, who has experience, kindly say what shrubs or climbers are best to plant against a wall in order to get birds to build their nests in the branches? *R. I. L., Botanic Garden, Cambridge.*

FRUITING OF EUONYMUS.—Can any of the readers of the *Gardeners' Chronicle* give a solution to the following query?—I have grown the green *Euonymus* for the last thirty years; during that time I have never seen a berry on them until the present season (that is, in my own garden). From time to time a few have been seen in the islands, but very few. This season, however, the bushes are more like *Holly* bushes, the berries are so abundant, and of a beautiful colour. *J. C. Tonkin, St. Mary's, Isles of Scilly.*

TO OBTAIN TREE-SEEDS.—Where can I obtain tree seeds, especially of Coniferous species? Does any nurseryman make a specialty of them? *S. J. Westlake, Woodhall, Exbourne, Devon.*



HOME CORRESPONDENCE.

FERTILE FROND OF ADIANTUM C.V. IMBRICATUM?—In reference to Mr. Hemsley's remarks in your last vol. (p. 475), that if the frond sent was one of the true variety, it had now reverted to its normal form. I have enclosed fronds both fertile and sterile; and, although they vary in form, I do not think you can get a true type of *A. capillus-veneris*. Although I have had specimens of fronds from other sources, they appear to be the same as I have now sent you. Mr. Hemsley quotes Mr. Schneider's remark, that plumose varieties are entirely barren. I have only to refer Mr. Hemsley to the issue of *Gardeners' Chronicle* for August 18, 1888, where there is a record of fertile fronds of *Adiantum t. Farleyense*, which spores had produced young plants of that form; and the *Gardeners' Chronicle* for October 13 of the same year gives an account of their being exhibited by Mr. Walton of Edge Hill Nurseries, Burnley, at the Royal Horticultural Society's Show on October 9. Not only does *A. c. veneris* vary in its seedlings, but many others do also; and I have found as the rhizomes have got older, they have formed their fronds more after the normal form of the parent. Some years back there was a great quantity of *A. Moritzianum* grown, which I am inclined to think was the South American form of *A. c. veneris*; but it seems to have gone, as I have not seen it for some years. *E. Sandford.*

—In reply to the above communication from Mr. Sandford, the first frond I examined certainly appeared to have spores; but the bunch of fronds just received, although they have the appearance of being fertile, have no good spores, or I can find none [nor we either. Ed.]. The fronds were too much curled-up to be certain as to their identity with the variety I have known. Just now I have no growing plants with which to compare them, and I have sent to the Editor the only dried frond I had. There is no accounting for the vagaries and eccentricities of Ferns, and I should not like to be too positive on any point; but in all my writings I am guided by actual personal experience, and I certainly maintain that the variety I have known as *A. c. veneris imbricatum* has never to my knowledge produced good spores, and until Mr. Sandford's communication I had never heard of its doing so. Mr. Sandford does not tell us if he has raised seedlings, or if the fronds sent are from Mr. Masters' variety. I am returning some fronds which I have pressed out, and I think if you compare them with the frond I sent with my last communication, you will find a considerable difference. I should be glad to hear of the experience of other growers regarding this beautiful Maiden-hair. Now, with regard to the second portion of Mr. Sandford's note. I well remember the statement appearing that *Adiantum Farleyense* had proved fertile, and that seedlings had been raised. I sent you notes on the subject, also a very tiny plant, which was obtained by taking the extreme point of a rhizome, and suggested that the supposed seedling was the result of one of these small points being accidentally dropped by the side of the stage where the plant was found growing. I also well remember the plants exhibited at the Drill Hall on October 9, 1888; for on that occasion I was with Mr. H. B. May of Edmonton, and while staging the largest exhibit of Ferns we ever made. I was considerably hindered by friends calling my attention to these so-called seedlings, Mr. Ba-ron being the first to do so; and the opinion I expressed on seeing them was strongly supported by more than one good authority on Ferns and their culture, the most forcible perhaps being that of our old friend, the late Mr. Shirley Hibberd. I should mention that the plants exhibited as seedlings had, so far as I can remember, fronds upwards of 6 inches long, and none of the small basal fronds usually found on seedling *Adiantums*. I have had the opportunity of examining some thousands of

plants since the above date, but up to the present have had no cause to alter my opinion that this beautiful Fern is absolutely barren. I have seen fronds, and enclosed one, which shows some semblance of fertility (but no spores. Ed.). I may add that there are some fine plants here standing about 3 feet high; also others in various sizes, but no spores. As I have said before, there is no accounting for what may happen; and if any one should get a genuine fertile frond, I would travel a long distance to see it. *A. Hemsley, Cambridge Nurseries, Worthing.*

MANURING.—Never was there a more mistaken idea than that of continual dressing of the ground, year after year, with strong manure; the soil gets over fat, Potatoes grow blotchy and become diseased, other vegetables have rank growth, and slugs and worms flourish. If any readers have been following the above practice, I advise them this year not to put on any manure, but give the land, instead, a good dressing of lime, spread evenly over the ground at the rate of 1 bushel to the rod; leave the lime on the surface till the spring, when it should be dug in. An excellent artificial manure mixture for Potatoes is: superphosphate, 3 lb.; kainit, 2½ lb.; nitrate of soda, 1½ lb., per square yard. Apply this evenly over the surface, and work in, not too deeply, with a fork. Some growers prefer basic slag to superphosphate, but although the superphosphate is a little dearer, it gives far better results. Another advantage is that the mixture can be used as liquid-manure, and consequently becomes handy for watering fruit-trees when the buds begin to show, and, later, when the fruit is forming. On loamy land it is often a very good plan to burn a quantity of the loam, together with all the refuse and rubbish which can be got. Dig in the ashes and burnt earth. Growing crops:—A very good fertiliser for giving spring crops a good start is sulphate of ammonia and nitrate of soda, one ounce per yard, care being taken that the powder does not fall upon the leaves. Fowl-manure, being very quick in action, must not be used carelessly, especially amongst growing crops. It is best mixed with twice its own bulk of soil, and applied as a top-dressing. Liquid-manure: a very useful liquid-manure for watering young crops, and even flowers, &c., is made of good guano, using 1 lb. in 20 gallons of rain-water; or, if desired to use dry, then 7 lb. to the rod (30 square yards) is ample. House-slops are good, but should be diluted with an equal quantity of water. *E. H. Potter, South Woodford, Essex.*

THE NEW CHISWICK.—The editorial suggestion that the Royal Horticultural Society's new experimental garden should be acquired rather sooner than later is one that all familiar with the difficulties that surround experimental or trial gardening in old Chiswick must approve of. It will be very interesting to learn from the President, or perha is through the Council's annual report, information as to what has so far been done in the direction of efforts to secure a new site for the needful garden at the ensuing annual general meeting of the Fellows. It will also be interesting to learn whether the Council is annually setting apart any sum for the purpose of creating a new garden purchase fund, or whether it proposes to borrow the sum so required, or how it expects to obtain such a large sum as will be needful for the purpose. Whilst acquiring land, it will be desirable to obtain, if possible, fully 20 acres, and the cost of that area of really good land will be great. Then there will be the cost of fencing it in, largely with walls, the erection of superintendents', foremen's, and other houses, stables, and cart-sheds; numerous sheds and stores for many diverse purposes, the erection of more modern glass-houses and pits, the laying-out of the ground with roads and foot-paths, the trenching and manuring of the ground, and finally planting it with myriads of trees and other things of a somewhat permanent nature. Then it is evident that whilst it is easy to talk of a new Chiswick, the cost of supplying it must be a very considerable one. Naturally, the site must be within easy reach of London, yet far enough out from the metropolis to ensure freedom from the smoke-area. It is doubtful whether it will be possible to secure such a site within 20 miles of London; indeed, it would be folly to purchase ground where in a few years' hence a thick population may be planted. Pure air and ample breathing-space are such essentials, that they must be obtained, even if the distance from London, where

they may be found, seems rather considerable. Naturally a new Chiswick, so remote from the great metropolitan centre, would present many difficulties in the way of paying frequent visits to it. Such visits would be far more costly to most of them than they are now, and would need the giving up to them of the entire day. There would be objections necessarily to be faced. But in a new and extensive garden, how much might be done to help make it full of pleasure and enjoyment to the visitor. If the site be of necessity

part is devoted to the decorative art in gardening, a small refreshment *châlet* where needful food could be obtained by visitors who give notice of their needs, and also those members of the committee who may be required to visit the gardens in the discharge of their respective duties. These are some, though not all, the matters that will need attention whenever the new gardens are formed. It is greatly to be hoped that a suitable site may soon be found, and the transference of the old to the new Chiswick be of early accomplishment. A. D.

spot before Christmas, and we had to use them. Despite this serious drawback, Newton Wonder will be largely grown in the future, as its flavour when cooked is superb. T. Turton, Sherborne, Dorset.

ISLES OF SCILLY.—The flower season here has just begun. *Narcissus Soleil d'Or* is furnishing from out-of-doors as well as the forcing houses many thousands of bunches of flowers for market. The promise of the crop is very favourable. J. C. Tonkin.

CABBAGES.—Few plants have had more attention or played a more important part in the garden, and in our time, than these; and few of us ever tire of growing, writing, or reading about, or eating good, sweet, tender Cabbages. Simple, too, as is their culture, it is by no means so easy as it may seem to keep the home well supplied with fresh, sweet Cabbages throughout the year. Hence, probably the number of good cultivators who have devoted much of their skill and time to the raising of improved Cabbages, and the selection of the finest and truest strains. No crops have been so severely rogued as seedling Cabbages, and many of our more popular strains are models of rigid selection. It was a happy thought of Mr. Wythes to combine the good qualities of the Rosette Colewort with the St. John's, say, Christmas Drumhead. By these and other crosses we might combine the earliest of the best Coleworts with the hardiest of our best winter Cabbages. The first fruit of this cross, Sutton's Favourite, is likely to have a long and useful life. There is often an embarrassing break in continuous supplies between the freezing-out of Coleworts and the coming-in of the early winter, spring, and summer Cabbages. I have known many growers who are ever grumbling that there are too many Cabbages already, but these are seldom found among those responsible for the supply of large households. We may have too many names, but that is a different thing. Most of us have known and grown the same Cabbage under hosts of names. Aliases here in our Cabbage-beds and throughout our gardens are mostly testimonials to good character, not subjects of doubt or suspicion, guilt or crime, as in society or courts of justice; for few good gardeners would devote from thirty to fifty years of their life to perfecting a Cabbage or what-not that was not of sterling merit. Hence I am always charitable to the forest of names that burden not a few of our vegetable, fruit, and flower lists; and there is generally this consolation—that should the newcomer prove yet another of the same with which we have long been familiar, that same will almost certainly prove one of the finest and most useful varieties. Who can say, for example, under how many names he has grown Mr. Wythes' favourite Early Autumn and winter Cabbage, the Winningstadt, sown in May? Or how many varieties we have had as Early York, Portugal, Fulham, Battersea, Imperial, Vanack, &c. As to the latter, I have heard of two gardeners growing it chiefly for fifty years each, one as Vanack, the other as Dwarf Battersea. It is early, compact, hardy, scarcely any stem exposed to the weather. It is also very dwarf; for early work 15 inches between the rows, and 10 inches between the plants suffice. As soon as cut, the Vanack starts afresh, and yields three or four sweet, tender Cabbagelets in an incredible short time. This old standard sort would yield a valuable cross with the Rosette Colewort. D. T. F.

LATE PEARS.—I consider the following varieties of Pears, viz., Glou Morceau, Josephine de Malines, Easter Beurré, and Bergamotte d'Esperen indispensable in order to obtain an unbroken supply of dessert Pears of the best quality to the end of January. For nineteen years at Maiden Erlegh, Reading, I depended chiefly upon these for late supply. My predecessor here, the late Mr. W. G. Pragnell, evidently recognised the value of these Pears, as he not only planted a number of trees of each, but he also planted them as far as possible at the foot of south and west walls. At Maiden Erlegh they were grown on west walls only, and they never failed to ripen satisfactorily. There are many varieties of late Pears sometimes recommended, but like Olivier de Serres, which is a shy bearer, or Beurré Rance, which is flavourless and lacking in appearance, they cannot be depended upon. Late Pears require a warm temperature to



FIG. 9.—AGAVE JACQUINIANA, IN THE GARDEN OF THE HOTEL DU PARC, CANNES.
(SEE P. 30.)

somewhat remote from a railway-station, the Council should arrange to have a vehicle that could convey the respective committees to and from gratis; whilst ordinary Fellows might, on giving a preliminary notice, be carried backwards and forwards at a small charge. It may be even possible for the Council to come to some arrangement with the conveying railway company to carry Fellows going to the garden station at reduced rates on showing their membership-tickets. Then it may also be possible to erect in the gardens where some

HAMBLING'S SEEDLING AND NEWTON WONDER APPLES.—Are these two very fine exhibition Apples going to bear out the high character as late keeping sorts they were given when distributed? I have been greatly disappointed with both varieties in this respect, but Hambling's Seedling in particular. We had about a dozen very fine fruits from a bush tree, all of which burst at the end of November, and were consequently unfit for use. We had a good crop of Newton's Wonder also from a bush-tree, but the finest fruits began to

ripen them satisfactorily after they have been gathered, and the ideal room for storing Apples is unsuitable for ripening late Pears. Here I have had shelves fitted up in the Grape-room for them. It is heated by hot water, and is kept at a temperature of from 45° to 50°. T. Turton, Sherborne.

AGAVE JACQUINIANA.

A CORRESPONDENT writes from the Hotel du Parc, Cannes, December 6, 1898, with reference to the illustration at p. 29. In the centre of the picture may be seen the large Agave which I had previously mentioned. Before flowering it was about 8 to 10 ft. (2.50 mètres to 3 mètres) high, and 15 ft. (4.50 mètres) in breadth, if not more, whilst the flower-stem itself was quite 16 to 20 ft. (5 to 6 mètres) high.

The flower-spike first made its appearance in February last, when the centre leaves were gradually forced apart, and a number of small leaves were produced. Its actual flowering period is from July to the beginning of August. We had the photograph taken when the stem had reached its full size, but it did not really expand its flowers until about a week later. This consisted of the buds opening slightly, and allowing a number of stamens to protrude; their yellow colour, not to mention the great quantity appearing, produced a most imposing effect.

One of our assistants, a sturdily-built fellow, wanted to have the pleasure of being photographed whilst hanging to the flower-stem, but had to pay dearly for it, as the stem is also provided with sharp thorns, attached to the outer covering leaves. He had, eventually, to take a ladder to get into the position seen on the picture.

Seated astride one of the large leaves is the head-gardener, who was also well scratched about the legs by the thorns at the sides of the leaves. The other is also an assistant. The plant soon began to wither, its leaves having then sunk considerably, and by the time it had done flowering they were all hanging on the ground. We cut them away some time afterwards, leaving only the flower-stem for visitors to the hotel to see.

Behind the Agave, rising above the group of trees, may be noticed the crown of an Eucalyptus Globulus, unfortunately somewhat distinct, being out of focus; whilst adjoining are two Cupresses, the pyramidal one being Cupressus fastigiata. The undergrowth is composed of Quercus ilex, Chamærops humilis and exelsa, and a few Phormiums; whilst the two tall trees to the right and left of picture are Pinus pyrenaica. To the left, below the Pinus, is an Arbutus Unedo (Strawberry-tree). Its fruits are ripe in November, having flowers and ripe fruits at the same time. Across the right top corner an overhanging Phoenix branch has also appeared on the picture.

SOCIETIES.

ROYAL HORTICULTURAL.

JANUARY 9.—The first meeting of the Committees of this Society for the year 1900 was held in the Drill Hall, James Street, Westminster, on Tuesday last. The display was little better than that shown on December 19, and if we except Orchids, there were very few novelties exhibited. In proportion to the rest of the exhibits, Orchids were very well represented, and many of them were new. There were awarded to these plants one First-class Certificate, one Botanical Certificate, and three Awards of Merit. Other than Orchids, the most important exhibit was one of Chinese Primulas from Messrs. SUTTON & SONS, Reading. This was very extensive, and is remarkable as illustrating a new "break" in regard to colour among the single-flowered varieties.

The only awards recommended by the Floral Committee, which sat for only a few minutes, were to these Primroses. But for two dishes of Pears shown by Mr. Geo. Woodward, Barham Court Gardens, Maidstone, the Fruit and Vegetable Committee might have been presented with white gloves.

Floral Committee.

Present: W. Marshall, Esq., in the chair; and Messrs. O. Thomas, C. T. Drury, H. B. May, R. Dean, W. Howe, J. F. McLeod, R. B. Lowe, C. E. Pearson, J. Hudson, E. T. Cook, H. J. Outbush, G. Gordon, C. E. Shea, C. Blick, H. Turner, G. Paul, D. B. Crane, and J. Fraser (Kew).

Messrs. SUTTON & SONS, Reading, made an extraordinary display of Chinese Primulas, which fully furnished one of the long tables that run along the length of the hall. The plants were of admirable strains, and no less remarkable for the splendid cultivation they exhibited. A few small Palms relieved the centre of the group, and the plants were edged with young plants of Pteris serrulata. Amongst single-flowered varieties were noticed varieties bearing the following descriptive appellations:—Bellefleur Rose, Blue Snowdrift, The Duchess (see Awards), Crimson King, Rosy Queen, pale rose or pink; Reading Blue, Crimson King. Several of these colours were presented in two types, one with plain, and the other with Fern-like leaves. Among double-flowered varieties were Pink, Scarlet, Carnation Flaked, and White; all of them were very good, and a double-flowered variety is described under "Awards." The "Star" Primulas, or varieties of P. stellata, were shown in pink and white varieties, and were extremely decorative (Silver Flora Medal). Messrs. SUTTON & SONS also showed a few plants in flower of their very distinct-coloured Cyclamen, Salmon Queen, and in addition white, pink, and red varieties of the "Papilio" or Butterfly type of Cyclamen.

Messrs. HUGH LOW & CO., Bush Hill Park Nurseries, Enfield, again displayed a group of Cyclamens with crested flowers. The development of this peculiar characteristic is exceeding interesting, and red as well as white varieties of this type are now obtainable.

Messrs. W. WELLS & CO., Ltd., Earlswood Nurseries, Red-hill, Surrey, showed blooms of two good decorative Chrysanthemums, Kakor, a yellow Japanese, and Letrier, a pure white.

Mr. H. J. JONES exhibited flowers representing the yellow and bronze sports of Chrysanthemum Etiole de Lyon. The bronze sport was figured by us on Dec. 2, 1899, p. 419, and is known as Mrs. Alfred Tate. The yellow one we believe is at present unnamed.

Mr. JOHN N. MAY, Summit, New Jersey, U.S.A., exhibited a new Carnation, "Olympia." The one developed flower had a white ground, and was flaked with bright red.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, made a very pretty exhibit of their Javanico-jasminiflorum Rhododendrons. These were to be seen at the last meetings in the old, as well as the first in the new year, and indeed are always in bloom. None of the varieties are other than charming.

Awards.

Primula sinensis "General French."—An excellent double-flowered variety; colour of flowers deep but vivid crimson. From Messrs. SUTTON & SONS, Reading (Award of Merit).

Primula sinensis "The Duchess."—A most distinct strain in Chinese Primulas, obtained from crossing a single deep red-flowered variety obtained from Mr. H. Balderson upon a pure white variety. The plant certificated had white flowers, with rosy-red colour around the greenish-yellow centre, the rosy colour shading into the white in a very charming manner. The blooms are of fine form, prettily flimbriated, and of much substance. To this variety, showing the latest development in the single-flowered type, was attached the Award of Merit recommended by the Committee as a recognition of the whole strain. From Messrs. SUTTON & SONS.

Orchid Committee.

Present: Harry J. Veitch, Esq., in the Chair; and Messrs. Jas. O'Brien (Hon. Sec.), De B. Crawshaw, H. Little, F. Sander, J. Gabriel, H. J. Chapman, W. H. Young, W. H. White, T. W. Bond, J. Colman, J. Douglas, H. T. Pitt, and J. Gurney Fowler.

Sir TREVOR LAWRENCE, Bart., Burford (gr., Mr. W. H. White), showed a most interesting group, in which were further evolutions in the Burford hybrid Calanthes. Of these, Calanthe x Limatodes, a cross with Veitchi back on the plant commonly known as Limatodes rosea, an example of which was also shown. The seedling, while retaining the form of C. rosea, was larger and of a darker colour; sepals rose-coloured, margined with white; petals similar in colour, but with the tip only white; lip ovate-oblong, rich carmine-rose, with white eye. Others distinct in form, and showing the influence of Calanthe labiosa were C. x reverens splendens, bright carmine-rose; C. x porphyrea, purplish rose. Also shown were C. x rubro-oculata splendens, a very fine flower; and C. x Phoebe, light rosy lilac (one of Mr. Cookson's hybrids). Other noteworthy plants were Mormodes Buccinator Rolfei, of a rich red-brown (Botanical Certificate); M. B. Warszewiczii, bright yellow; Cypripedium x Fascinator, and Platyclinis uncinata.

Sir FRANKER WIGAN, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young), was awarded a Silver Flora Medal for a fine group, in which was a profuse display of cut spikes of most of the showy Phalaenopsis, most of which had been grown for many years (one of P. Schilleriana for sixteen years). The species shown were Phalaenopsis amabilis, P. Aphrodite, P. Schilleriana, P. Stuartiana, P. Sanderiana, and the fine P. S. Wigan's variety; P. x Gaeta, P. x leucorrhoda, &c., all in more or less quantity. With them were Cypripedium insignis, Wigan's variety; C. x Statterianum, C. x Rothschildianum, very fine; C. x Lecanum, and C. x Marjorie (Lecanum superbum x insignis Sylhetense). Also Lælia Gouldiana, with six

flowers on a spike; L. albidia, Odontoglossum crispum, Cattleya Luddemanniana, cut sprays of the fine purple Pleurothallis Rozeii, and two distinct hybrid Zygo-colax (see Awards).

R. W. RICKARDS, Esq., The Priory, Usk, Mon. (gr., Mr. Murrell), secured a Silver Banksian Medal for a neat group of excellently well-grown Odontoglossum Rossi majus, a magnificent plant of Cypripedium bellatulum, Usk Priory var., with large, broad, fleshy leaves, and bearing three fine flowers with large distant purple spots on the face, and smaller rose-purple markings on the reverse side (Cultural Commendation); a form of Odontoglossum x Andersonianum, Odontoglossum crispum with a six-branched spike, and one with a simple inflorescence; Oncidium Forbesii, and a showy form of Cypripedium insignis.

Messrs. HUGH LOW & CO. staged a good group in the background, of which were three fine forms of Cymbidium Tracyanum, each differing from the others in its markings. In the centre was the fine yellow Cypripedium insignis Laura Kimball, the distinct C. x Lecanum Olinkaberianum, C. L. giganteum, and the soft-tinted C. x insignis-hirsutissimum. Also in the group were two good Cycloches chlorochilum, fine Lælia Gouldiana, &c. A Silver Banksian Medal was awarded.

Messrs. LINDEN, l'Horticole Coloniale, Brussels, sent Odontoglossum crispum Papillon, a fine white variety, with broad segments prettily blotched with brown; O. x Adrianeum, a neat flower of a clear primrose-yellow, evenly spotted with red-brown, the labellum being white, with one large and some smaller brown blotches; Cypripedium Lawrenceanum splendens, a large flower with the dorsal sepal longer and narrower than usual, and tinted and lined with rich rose-purple; and C. x Gowerianum formosum (Lawrenceanum x Curtisii), a noble flower, with the upper sepal very large, tinged with bright rose-purple, the apex and upper margin being white, dark chocolate-purple lines radiate from the base, changing to dark rose as the margin is approached. Petals heavily blotched with raised dark purple spots; lip-face reddish-brown; foliage handsome, like C. Lawrenceanum.

Mr. ED. KRAMER, Raima Nursery, Bandon Hill, showed a good plant of Brassavola nodosa grandiflora.

Messrs. B. S. WILLIAMS & SON, Upper Holloway, showed an interesting group of Cypripediums, including C. x rubrum, C. x calophyllum, C. x Sallieri aureum, C. x nitens superbum, several C. x Lecanum superbum, C. x Spicerianum, C. insignis Maulei, C. l. Forstermanni, C. l. alba-marginatum, C. villosum, C. x Messuresianum, C. x Fitchianum, C. x Williamsianum, C. x Pitcherianum, Williams' variety; and a pretty seedling raised between C. Boxall and C. x Harrisonianum superbum.

Mr. JAS. DOUGLAS, Edenside, Great Bookham, again showed the pretty creamy-yellow Lælia x Briseis (harpophylla x purpurata).

NORMAN C. COOK ON, Esq., Oakwood, Wylam (gr., Mr. Wm. Murray), showed Calanthe x atrorubens (Wm. Murray 9, Oakwood Ruby), a very fine hybrid, of uniform rich purplish-red, the centre being the darkest. The plant is of compact habit; the flowers do not reflex, but arrange well, and are totally distinct from others in colour.

J. T. BENNETT-POW, Esq., Holmewood, Cheshunt (gr., Mr. Downes), showed a plant of the fine Dendrobium spectabile, illustrated in the Gardeners' Chronicle, December 30, 1899, the present variety being more densely marked with purple.

G. W. LAW-SCHOFIELD, Esq., New-Hall-Hey, Rawtenstall, Manchester (gr., Mr. Shill), showed Cypripedium x Lecanum rubrum, with fine red-purple blotches in the upper sepal; and C. x Lecanum grandisepalum, a singular and handsome variety, in which the abnormally-developed lower sepals are white, with a green base, and as showy as the upper sepal.

Sir WM. MARRIOTT, The Down House, Blandford (gr., Mr. Denny), sent Sophro-Lælia x Marriottiana (L. flava 9, S. grandiflora 8), differing in colour from former varieties, those of the present form being tinted like some of the yellow and orange Cannas now so popular. Sepals and petals yellow, with all but the margins flaked with orange-scarlet; lip dark reddish-orange.

Earl BROWNLOW, Ashridge, Berkhamstead (gr., Mr. R. Low), showed a fine plant of Cypripedium x Lecanum with upwards of twenty-five flowers.

Messrs. HEATH & SON, Cheltenham, showed C. x Lecanum viride.

T. W. SWINBURNE, Esq., Corndean Hall, Winchcombe, showed Lælia Jongheana.

Captain HOLFORD, Westonbirt, Tetbury (gr., Mr. A. Chapman), sent flowers of a delicately-tinted Cypripedium, resulting from C. x Godeffianum x hirsutissimum; also C. x Hera Euryades, C. x Lathamianum, and a good Cattleya Percivaliana.

Awards.

Cypripedium x Sir R. Buller.—A grand flower, with some of the aspect of C. x Swinburnei magnificum, but larger and showier. Dorsal sepal very large and flat, emerald green at the base, pure white in the upper half. Lower portion with heavily dotted purple lines, changing to rose-purple on the white upper portion. Petals yellow, tinged with rose, and bearing fine dark purple-brown blotches; lip yellow, tinged with red. From W. M. APPLETON, Esq., Weston-super-Mare (First-class Certificate).

Lælia anceps Leeani.—Flowers white, with purple lines from the base of the lip to the yellow disc. Front of lip and side-lobes tinted pale rose. From Sir TREVOR LAWRENCE, Bart. (gr., Mr. W. H. White). (Award of Merit.)

Zygo-Colax x Wiganiana (Z. intermedium x C. jugosa).—A well-defined hybrid, apparently with the strong habit of the growth of Z. intermedium. Sepals and petals pale green, barred with light brown; lip white, with violet lines as in

Z. intermedium. From Sir FREDERICK WIGAN, Bart. (gr., Mr. W. H. Young). (Award of Merit.)

Zypo-Colar × *Leopardinus*, *Wigan's variety* (Z. maxillare Gaudieri × O. jugosum).—A very handsome flower, with the sepals and petals of equal proportions, emerald green, closely and uniformly barred with red-brown. Lip violet, with some dark purple markings around the fleshy callus. From Sir FREDERICK WIGAN, Bart. (gr., Mr. W. H. Young). (Award of Merit.)

Fruit and Vegetable Committee.

Present: Philip Crowley, Esq., Chairman; and Messrs. W. Ponpart, Jas. H. Veitch, C. Herrin, Alex. Dean, S. Mortimer, W. Bates, W. Farr, Geo. Wythes, Geo. Woodward, H. Balderson, F. Q. Lane, Robt. Fife, and Geo. Bunyard.

A Cultural Commendation was given to Mr. Geo. Woodward, Barham Court Gardens, near Maidstone, for a dish of excellent fruits of the Pear *Parsé Crassane*.

Award.

Pear Doyenné d'Alençon.—A well-known late Pear, of good quality. Fruit, average size, rather short, thick; skin, light green, very freely marked with patches and spots of russet; eye small, open, set in a shallow depression; stem short and stout, and set in a small basin-like cavity. A good Pear for so late a season, but somewhat gritty at the core. It has been urged as being very similar to *Easter Beurré*, but the fruits are not quite so first-rate. From Mr. Geo. Woodward (Award of Merit).

YORKSHIRE GALA.

THE ANNUAL MEETING.

THE annual meeting of guarantors and life members of the Grand Yorkshire Gala was held last week at Harker's Hotel, York. Ald. Sir C. A. Milward presided, and there was a good attendance.

The Chairman said it was a matter of sincere congratulation to them all that last year's gala was one of the most prosperous in the annals of the institution, and they could only hope that the forthcoming one would be equally prosperous. He was afraid that the holding of the Royal Agricultural Society's Show in the following week would materially affect the attendance at the gala. The Chairman said he had to propose that the Lord Mayor of York be elected President for the ensuing year. This proposition was accepted unanimously. It is twelve years since the present Lord Mayor, who then as now, occupied the chief civic position, also presided over the destinies of the gala.

The Lord Mayor, in accepting the position, said he did not think they need fear that the Royal Agricultural Show would very much affect them. People would go to the Grand Yorkshire Gala, and they might remember that it was held a week before the Royal Show, which was very much better than a week after.

The Lord Mayor then proposed that Sir Christopher Milward be elected chairman of the council, and after very considerable pressure, this gentleman was prevented from vacating the position in favour of a younger man. Sir Christopher Milward has done a very great deal for the Yorkshire Gala. Mr. Alderman Border was re-elected vice-chairman; Mr. Joe Wilkinson, treasurer; and Mr. C. Simmons, secretary.

After the elections to the council had been made, the Lord Mayor proposed that the Society contribute £21 to the Soldiers' and Sailors' Families' (local) Fund, which was agreed to unanimously. The following grants were made:—£650 for the floral fête, £230 for music, £120 for fireworks, £60 for balloon ascents, and £175 for amusements.

SCOTTISH HORTICULTURAL.

JANUARY 9.—The annual meeting was held on the above date. The Association now numbers over 800 members. Horticulturists everywhere will be pleased to learn that, notwithstanding the war, and the change of band at the last moment, the balance-sheet was on the right side. Letters were read from the Lord-Provost of Edinburgh, the Secretaries of the Gardeners' Orphan Fund and of the Gardeners' Benevolent Institution, acknowledging with thanks 50 guineas for the widows and orphans through the African War, and 5 guineas each for the two institutions named. Great interest was taken in the proceedings.

It was stated at the meeting that this was the largest Society of the sort in existence.

Mr. C. W. Cowan, Valleyfield, Penicuik, the president, and afterwards Mr. Alexander McKenzle, Warriston Nurseries, presided. The President expressed the hope that throughout the year the character of the weather would be such as would be for the prosperity of horticulture. Nineteen gentlemen were elected to ordinary membership, and thirty-one were nominated for election, as well as three for life members. The secretary (Mr. R. Laird) submitted the report, which offered congratulations on the continued success and increased prosperity of the association. Reference was made to the general work of the year, including the floral competitions, and fitting tributes were made to the memory of the late Mr. M. Dunn and Mr. W. M. Welsh. Mr. William Mackinnon, the treasurer, reported that the receipts at the Chrysanthemum show were £1038 4s. 8d., while the expenditure came to £1065 5s. 5d., being a balance to the Association's fund of £22 19s. 3d. The ordinary income of the Association, including balance from last year, amounted to £949 6s. 6d., and

after meeting the expenditure the surplus funds at the end of the past year were £777 12s. 1½d. The reports were adopted, and some alterations were made on the rules. Office-bearers, &c., were afterwards elected. The Duke of Buccleuch was again chosen as honorary president, and Mr. Cowan as president. Mr. Laird and Mr. Mackinnon were re-elected secretary and treasurer respectively. D. T. F.

LINNEAN.

DECEMBER 21, 1899.—Dr. A. GUNTHER, F.R.S., President, in the Chair.

Mr. W. G. FREEMAN, F.L.S., exhibited a tree of *Hevea brasiliensis* (Para Rubber), showing the method of tapping adopted in Ceylon.

Dr. R. BRAITHWAITE, F.L.S., exhibited specimens of *Hypnum Hochstetteri*, Schimp., collected by him on the Isle of Barra, Outer Hebrides, the only known locality for it in Europe, though it is found in the Azores and Canary Islands.

The Zoological Secretary communicated a paper by Prof. T. W. BRIDGE, D.Sc., F.L.S., on the "Air-bladder and its connections with the Auditory Organs in the Notopteridae."

Mr. F. CHAPMAN, F.G.S., A.L.S., read a paper on some new and interesting Foraminifera from the Funafuti Atoll, Ellice Islands.

The specimens described, and illustrated by means of lantern-slides, comprised the larger forms found at Funafuti, and on coral-reefs generally, together with a new genus (*Haplocatenia*) and eight new species.

The next meeting of the Society will be held on Thursday evening, January 18, at 8 p.m. precisely, when the following papers will be read:—

Mr. H. M. KYLE, B.Sc.—On the Existence of Nasal Secretory Sacs and of a Nasopharyngeal Communication in the Teleostei.

Mr. GEORGE MARREE, F.L.S.—On the Origin of the Basidiomycetes.

MISCELLANEOUS SOCIETIES.

Wargrave and District Gardeners'.—An ordinary fortnightly meeting was held on Wednesday evening, Jan. 3. The Committee and officers for 1900 were nominated, and the judges' awards in the monthly and fortnightly competitions announced. The prizes will be awarded at the annual meeting, to be held shortly. A paper on "Violets" was read by Mr. Bazeley, of the Twyford Nurseries. He advocated the variety *Marie Louise* as the best for ordinary and market purposes. The kind of soil, manures, aspect, methods of planting requisite, and common diseases and remedies were described. Mr. Pope exhibited some well-grown plants of *Euphorbia jacquiniiflora*, and a nicely-flowered plant of *Sophronitis grandiflora*.

Aberdeen Gardeners'.—The annual social reunion took place in the Bon Accord Hotel on the 3rd inst. About 140 ladies and gentlemen were present. Supper was partaken of during an interval in the dances, and the chair was taken by Mr. Alex. Mortimer, Balnagask, who made a speech in which he reviewed the progress of gardening during the past forty years. Mr. Alex. Robson (Messrs. Smith & Son, seedmen), proposed the toast of "The Gardeners," and there were several other toasts, all of which were well received, and pleasant evening was spent.

MARKET GARDENING.

TOMATOS UNDER GLASS.

SEED should be sown at once to raise plants for planting under glass towards the middle or end of March for fruiting in June. *Chemin Rouge* is the most reliable variety, being a good cropper, the fruit excellent in size, shape, and colour. *Challenger* is another good variety, being a strong grower and free-bearer, the fruit usually attaining to large size, good shape, and fine colour. A few plants of new sorts should only be grown for trial, saving seed of any variety that in cropping quantities, size, shape, and colour of fruit may be considered a decided improvement on older varieties. In the matter of making selections from recent introductions, market-growers require to be very careful, and consider well the pros and cons before discarding old, well-tested varieties for new ones. The above remark is made for the benefit of those readers of the *Gardeners' Chronicle* who are "fresh" to the business of market-gardening; old-established hands are well able to take care of themselves in this direction.

Now the seed thinly in shallow boxes filled to within half an inch of the top, with a compost consisting of sifted soil and short manure in the proportion of three parts of the former to one of the latter, this being made firm with a piece of board before sowing, and after covering the seed lightly with some of the mixture indicated. Each box

should be provided with about five ½-inch circular holes in the bottom, these being covered with pieces of crocks, hollow side down, and a layer of half-rotted leaves for drainage. Place the boxes in a forcing-house, water through a fine rose, and cover with a few squares of glass to confine heat and moisture in the soil, and thereby hasten the germination of the seed. As soon as the plants appear, tilt up the glass a little with a piece of crock or wood in order to inure the seedlings to the atmospheric temperature of the house before removing the glass altogether a few days later. The boxes should be given a position near to the roof-glass. An atmospheric night temperature of 55° to 60° should be maintained, allowing 5° to 15° more in the daytime by fire and sunheat.

When the seedling plants have attained to a height of between 1 and 2 inches, they should be potted singly into 3-inch pots, having a piece of potsherd in the bottom of each for drainage, using the same kind of mixture as that advised for sowing the seed in, this being made fairly firm in potting. Stand the pots on a permanent or improvised stage near the glass, and admit a little fresh air to the house during favourable weather as soon as the plants have pushed their roots into the new soil; water being applied to settle the soil in the meantime. Under the combined influence of increased light and solar heat, the plants will make satisfactory leaf and root growth, and therefore will require more frequent applications of tepid water at the roots, as growth proceeds. Should the young plants by any chance become affected with aphid, the house or pit in which they are growing should be fumigated with *NL-All* vaporising compound before they are planted in the house or houses in which they are to fruit. A space of from 20 to 24 inches should be allowed between the rows in planting, setting the plants at 1 foot from plant to plant in the row, the soil being pressed pretty firmly about the roots in planting.

SWEET PEAS AND MIGNONETTE.

No time should be lost in making good sowings of Sweet Peas and Mignonette in ground which has previously been given a liberal dressing of short manure, ploughed or dug into it, bearing in mind that the better heart the ground is in, the better will be the results obtained therefrom. Sweet Peas should be sown in shallow drills from 3 to 4 feet apart, allowing a space of about 15 inches between the rows for Mignonette. In order to preserve the roots of Mignonette plants from the attacks of wire-worm, a little fresh soot should be strewn along the bottom of the drills before sowing the seed therein. For marketing purposes, Sweet Peas of distinct colours should only be grown. As soon as the Peas appear above ground, a little soil should be drawn up to them on either side, and be dusted overhead with a mixture of lime and soot as a protection from the ravages of birds, which must be guarded against. H. W. Ward, Rayleigh.

THE ROCK GARDEN.

SAXIFRAGA RHEI.

THE genus to which *Saxifraga Rhei* belongs is a most important one for the alpine garden. It embraces plants of great variety in habit, many being among the choicest gems of the garden. The mossy section, to which the one under notice belongs, is the least appreciated; but it nevertheless includes a number of flowers of much beauty. Even the commoner species are very pretty in spring, when the clumps of moss-like verdure are spangled over with the small flowers which, in many instances, are but little raised above the plants. Nor do these flowers exhaust the beauties of the plants, for when autumn comes the foliage assumes its brightest green, and looks cheerful throughout the winter.

The flowers of these *Saxifragas* give us but little

variety of colour. White, of greater or lesser purity, vastly predominates. *Saxifraga Rhei* is one of the few exceptions. When it opens first, the little blooms are of a beautiful pink colour; gradually they become lighter, until they pass off almost to a bluish-white. They are larger, and better formed than those of that little beauty, *S. muscoides purpurea*, which has several aliases, and whose exact name I do not venture to know. The plant is also more vigorous in its habit. One can hardly over-praise this species in the eyes of those who have acquired an affection for *Saxifragas*. The writer has yet a vivid recollection of the admiration it inspired when a friend who had only added it to his collection a short time before drew his attention to it in his rock garden; its beauty was undeniable, and the writer was not long before securing a plant for himself. That is some years ago, but *Saxifraga Rhei* is a favourite whose blooming is watched for yearly with hopefulness.

Like most of the mossy *Saxifragas*, its cultivation presents few difficulties; it grows well in either sun or shade, but has decided objections to drought. It shares this, indeed, with most *Saxifragas* of the same section. It grows very well in a soil composed of peat and sand, but does not object to one of a stiffer nature. [It is a variety of *S. muscoides*. Ed.]

MAZUS PUMILIO.

This alpine plant cannot be kept in the rock garden here for more than a year or two before it dies. It appears to live for several years in other gardens not very far away, and which have an even lower winter temperature. After a good deal of observation and comparison, I have come to the conclusion that it needs some protection from rain during the winter months in this garden. Neighbourhood to the sea has its advantages for gardening, but it has also its drawbacks, and it may be that the frequent freezings and thawings are more injurious to some things than even the winter rains. Of course, we have more rain than those further inland, as what falls in the form of snow a mile inland is represented here by rain or sleet. This may be the cause of the failure of some plants, though the climate is generally very suitable for the growth of alpine. This may appear somewhat foreign to a mention of *Mazus pumilio*, but is necessary to explain the conditions under which some plants fail. It is rather disheartening to have a plant which has grown splendidly for a year or two, dwindle rapidly away just when it had, to all appearance, established itself happily about the stones in the rockeries, and had crept among them in a most pleasing way. However, one becomes, in time, accustomed to these disappointments, for which there is no remedy save the precaution suggested of covering with glass in winter, or keeping a small reserve in a frame or alpine-house.

I know that a good many people have never seen *Mazus pumilio*, although it has been introduced for more than seventy years. A brief description may therefore not be unwelcome to some readers. It grows only 2 or 3 inches high, and has flowers which the casual observer would at a glance imagine to belong to the Pea family, although the *Mazus* is one of the *Scrophulariaceae*. The blossoms are pale purple or violet in colour, with a white centre. The stalks are very short, and rise but little above the leaves, which lie almost flat on the ground. There are little protuberances or tubercles in the mouth of the corolla, and it is from their presence that the plant received its name; *Mazus* being derived from *mazos*, signifying a test.

The *Mazus* may be easily increased by division. It appears to like a soil of peat or loam and sand, and to creep close to stones.

VERONICA NUMMULARIA.

Veronicas present many difficulties to those of us who like to have our plants correctly named. The taller plants in particular are often tantalisingly troublesome to name. There are, however, espe-

cially among these best adapted for the alpine garden, a good number with which there is little or no trouble on this score.

Veronica nummularia is one of the latter class, and its accommodating habit in our gardens is marked. It is aptly named *nummularia*, from the resemblance of its leaves to those of the Moneywort, although on a much smaller scale; they are also produced on creeping branches. The blue flowers, although not large, are quite proportionate to the height and size of the plants on which they are produced. They come into bloom about June, and last for a month or two in flower.

This *Speedwell*, like a number of the other species, appears to prefer a rather moist soil of a gritty nature. It also lasts longer in bloom if not in full sun. It is a native of the Pyrenees, whence it was introduced in 1820. It is a very ornamental and pleasing little plant, with its deep blue flowers, and may be readily increased by division. *S. Arnott, Careethorn-by-Dumfries, N.B.*

TRADE NOTE.

MR. JAMES WEBBER, who has held the position of gardener for the past thirteen years to G. F. Luttrell, Esq., Dunster Castle, Somersetshire, will resign at the end of the present month, in order to commence business as a fruiterer and florist at Minehead.

Obituary.

ALEXANDER BROWN, who has been gardener to W. McAlpine Leny, Esq., of Dalawinton, near Dumfries, for about twenty-three years, expired in a painfully sudden manner on the 4th inst. He was sitting at the fireside in the evening when he complained of a pain in the region of the heart, and soon afterwards died from heart disease. Mr. Brown appeared to be in good health up to the time of the seizure. He was fifty-five years of age, and leaves a widow and two sons.

ANSWERS TO CORRESPONDENTS.

BOOKS: *E. C. C. D., Ashford*. The twelfth edition of *Culpeper's Complete Herbal*, mentioned in our issue for December 30, p. 491, is published by Messrs. Milner & Co., Paternoster Row, London, E.C.—*R. de Blouay. Observations on the Colours of Flowers*, reviewed on p. 491, vol. xxvi., may be obtained from Mr. E. William Hervey, 191, Hawthorn Street, New Bedford, Mass., U.S.A.—*J. B. (1) The Chemistry of the Garden*, by Herbert H. Cousins, M.A.; published by Macmillan & Co., Ltd., Price about 6d. or 1s. (2) *A Text-book of Plant-diseases*, by George Massee, (Duckworth & Co., 3, Henrietta Street, Covent Garden, London, price 5s.)

GARDENERS' BENEFIT SOCIETY: *C. E. F.* You doubtless refer to the United Horticultural Benefit and Provident Society. The Secretary is Mr. W. Collins, 9, Martindale Road, Balham, S.W. You cannot do better than join this excellent society, or recommend to your gardening associates the unique advantages it offers.

GARCINIA MANGOSTANA: *E. Métais*. The *Mangosteen* is a native of the Moluccas. It is also cultivated in the Straits Settlements, in Java, and in several of the West Indian Islands, notably Trinidad and Dominica; and fruits have been produced by cultivated plants in those islands within the last fifteen years. The only recorded instance of its having fruited in Europe was in the garden of the Duke of Northumberland at Syon House, Brentford, in 1885, under the care of Mr. John Ivison. This plant was brought from Calcutta in 1833. It was grown in a stove at Syon, and planted in turfy loam in a pot until about three years before it fruited, when it was shifted into a tub 3 feet square. A house was devoted specially to this plant, which was afforded a bottom heat of from 80° to 90° by means of hot-water tanks, the temperature of the atmosphere varying from 65° to 90°. Plenty of water was given to the plant whilst growing, and it was shaded during bright sunshine. The

first flower expanded on November 18, 1854, when the plant was 15 feet high and 9 feet through. Four fruits were matured by the end of April; they were spherical, nearly 3 inches in diameter, and a reddish-chocolate colour. The flavour was described by Sir William Hooker as delicious, like a mixture of a first-rate Grape and Peach. A figure of flowers and fruits from the Syon plant was published in the *Botanical Magazine* in 1854 (tab. 4847). Several notices of it were also published in the *Gardeners' Chronicle* for that year. In a wild state the trees are said to be about 20 feet high with spreading branches.

GAS-LIME UPON LAWN: *Bristo*. It would not injure your grass if you use but a sprinkling. Do not allow it to be put on carelessly, or in small heaps; and if it is not perfectly fresh, but has been exposed to the air, so much the better.

HYACINTHS: *F. T.* The attachment of the flower-spikes is due to their having grown too fast in proportion to the outer scales of the bulb, which have consequently pinched off the young growths. Another time do not force so much, or so hastily, but allow more time for all the parts to grow equally.

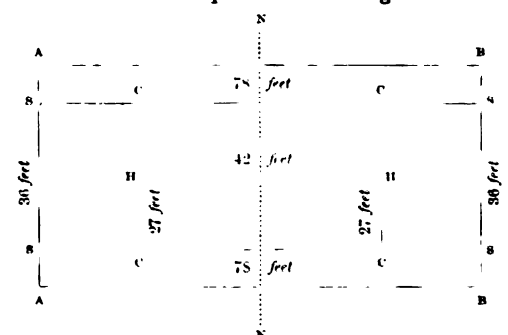
MAPLES: *T. T.* You are not likely to succeed in striking cuttings. The best means of propagation of particular varieties is by budding or grafting, and of the species by seeds, which may be sown in spring or in autumn.

NAMES OF FRUITS: *J. W.* 1, Waltham Abbey Seedling; 2, Scarlet Nonpareil; 3, Smart's Prince Arthur; 4, Golden Noble; 5, Reinette de Canada.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*E. G.* *Odontoglossum Andersonianum*, and *Lælia anceps stella*.—*C.* *Scirpus maritimus*.—*E. G.* *Ruellia Portella*.—*R. W.* 1, *Sophranitis violacea*; 2, *Maxillaria nigrescens*. *J. P., Kaling*. 1, *Coronilla glauca*; 2, *Diplacus glutinosus*; 3, *Hibiscus rosa sinensis*; 4, *Habrothamnus elegans*.—*J. S.* A very fine form of *Dendrobium Wardianum*.

PALM IN DWELLING-ROOM: *H. G. F.* The injury to the foliage of the Palm was doubtless caused by its having been kept in the dwelling-house under the circumstances you suggest. The foliage might have been so injured, and yet not evidence it much until removed to other quarters.

TENNIS COURT: *C. J. D.* and *W. H. R.* The dimensions for a tennis court were given in our last number, but the design which we now reproduce may help you and others the better to understand the requirements of the game:—



A B, B A, double court for three or four players; S S, S S, single court for two players. A A and B B are the base lines; A B, A B, and S S, S S, side lines; C C and C C, service lines; H H, half court line; N N, net. A court for the single game is 27 feet wide, and 78 feet long; and for the double game, 78 feet long, and 36 feet wide. The posts for supporting the net should be placed 3 feet beyond the sides. The service lines run parallel to the net, and are 21 feet distant from the same.

COMMUNICATIONS RECEIVED.—*R. L. C.*—Secretary Gardeners' Royal Benevolent Institution.—*E. O. Orpet*.—*D. L. Macintosh*.—*R. P. B.*—*W. H. S.*—*E. M.*—*J. W.*—*St. Julien*.—*A. Subscriber* (next week).—*Anxious* (next week).—*W. G.*—*A. W. Kingsdown* (next week).—*A. M.*—*Dilthorne*.—*R. L. C.*

SPECIMENS AND PHOTOGRAPHS RECEIVED WITH THANKS.—*H. Weber*.

(For Markets and Weather, see p. x.)



THE

Gardeners' Chronicle

No. 682.—SATURDAY, JAN. 20, 1900.

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THE FLORA OF CAPE COLONY AND NATAL.

INTERESTS of all kinds centre at the present time in Cape Colony and Natal, and the thoughts of those interested in plants instinctively turn to their favourites from those regions which Professor MacOwan once referred to as having the finest and showiest flora in the world, though the inhabitants took but comparatively little interest in it. If that is true of the colonists generally, the neglect of the majority is, to a certain extent, counterbalanced by the energy of the few, among whom may be named Mrs. F. W. Barber, and her brother Colonel Bowker; the Rev. R. Baur, Mr. H. G. Flanagan, Mr. W. Tyson, Mr. Galpin, Professor MacOwan, the Government botanist, Mr. Harry Bolus; and Mr. J. Medley Wood, who is now doing such good work in publishing the *Natal Plants*.

Botany is not much helped by many of the so-called botanic gardens. Conflicting interests in these, as in most other matters, render it impossible for those who could and would do good work to get the necessary funds. At Cape Town, where Professor MacOwan struggled for years to make the establishment worthy the name of a botanic garden, the lack of sufficient interest shown in the scientific aspect of gardening, ended in the gardens being taken over by the municipal authority, and they are now under the superintendence of Prof. MacOwan's loyal second in command, Mr. H. J. Chalwin, one of the oldest and best respected of British-reared gardeners in Cape Colony,

and who still continues to do what he can for the scientific, though forced to consider mainly the ornamental side of gardening. From 1823 the persevering Drège used to collect plants, and large collections were identified or named by Meyer, Nees, and Kunth, a great many of the specimens having been collected in the now troubled districts of the Drakensberg and Stormberg ranges. Zeyhr and Ecklon also commenced their work at the same time, and the few years following 1823 were the most important in South African botany. Curiously enough, while many new species have been added, often by residents fond of flowers, but not botanists, some of the plants recorded by Drège especially have not again been found.

There is no doubt that in the outlying hills of Natal and the Transvaal, and along the whole of the Drakensberg, there are still many plants of equal importance to the recently-introduced *Richardia Elliotiana* and *R. Pentlandi*, new to science. Recently Mr. J. Medley Wood succeeded in getting two new *Nerines* of quite a new section—*N. pancratioides* and *N. appendiculata*; also *Cyrtanthus O'Brieni*, which discovery was interesting, for the discoverer was attracted to the spot in the hills by seeing a dead Kafir lying there. After his curiosity was satisfied as to the cause of death, a glance around disclosed the pretty orange-scarlet tubular flowers of an evidently new *Cyrtanthus*, which Mr. Baker described afterwards.

A letter from Mr. John Marshall, of Dundee, a large cattle farmer (who has, or had, also a summer farm on the Drakensberg), accompanied by a photograph of a few flowers gathered on his farm, but of which all but the *Brunsvigia Josephinae* (see fig. 10, p. 34), had withered by the heat of the sun, is of special interest, as it was taken shortly before the Boers invaded Natal. Mr. Marshall tells how he had to go with "nothing but what I stood up in. In the morning I could see the other Boers had taken possession of my farm, and had placed their big guns in the paddock just behind my house. Then they burned my home down, wrecked the premises, took all my stock, and thus swept away the fruits of the labours of the best part of my life. I had a nice collection of dried flowers, but now with the rest of my belongings they are ashes."

For one who has lived a pastoral life in an ideal country for thirty years, to be driven away from a home so beautiful by hordes of marauders is a sad experience.

In mentioning the many flowers surrounding him when he gathered those photographed, Mr. Marshall makes one long to be present in quieter times. There were *Clivias*, *Nerines*, *Cyrtanthus*, *Crinums*, *Agapanthus*, *Hæmanthus*, *Gladiolus*, the pretty *Stenoglottis longifolia*, with its elegant lilac-coloured sprays rising from rosettes of purple-spotted green leaves; *Disas*, of which the fragrant white and violet *D. crassicornis* is one of the most beautiful; *Eulophias*, of which a dried flower of a very handsome species is sent; *Richardias*, white, rose, and yellow, a large spathe of a chrome-yellow, with purple centre, sent, being apparently different from either yet introduced.

On these slopes of the Drakensberg, too, the *Anoiganthus*, with their bright yellow flowers, seem to take the place of the *Narcissi* in Europe. There are two species, *A. breviflorus*, and *A. luteus*, which is like a small form of *A. breviflorus*, though it has one or two peculiarities which point otherwise. It has been suggested that *A. luteus* is a highland

form of *A. breviflorus*, as often the same species becomes dwarfer and smaller with altitude; but Mr. J. Medley Wood, who is the best authority, points out that the habitats are the reverse of that suggested. *A. luteus* (the small one), being met with up to 1000 feet, while the larger, *A. breviflorus*, begins where it leaves off, at 1000 to 2000 feet. For plants of such close resemblance a singular reversion of the usual course, whether specifically distinct or not.

The South African *Nerines* have occupied the attention of specialists, and the genus *Cyrtanthus* would be worthy of the same attention, for all are elegant in form, and many brilliant in colour. *C. sanguineus* is one of the handsomest of Natal bulbs, its scarlet *Vallota*-like flowers being the showiest of the genus, and with the allied white *C. helictus* (fig. 11, p. 35) and *C. uniflorus*, would make an interesting group, to which might be added two or three others known to exist.

The tubular-flowered or *Mopella* section of *Cyrtanthus* is well represented in gardens, the most commonly seen being the white *C. Mackenni*, the yellow *C. lutescens*, and the scarlet *C. angustifolius*, which seems to be very variable in form and size according to its habitat. The most beautiful of this class are *C. Macowani* and *C. Tucki*, of a dark scarlet hue, both inhabiting the Boschberg at about 5000 feet altitude, and of the larger species *C. obliquus* (fig. 12, p. 37), *C. carneus*, and *C. Huttoni*, represent a distinct class.

These South African *Amaryllids* grow well in any ordinary greenhouse, and being bulbous plants, require far less care than shrubby plants, and if *Nerines*, *Hæmanthus*, and allied plants are grouped together, the beauty and variety of their flowers soon make them favourites. To the amateur who has no knowledge of the subject, it will simplify their culture if it is said that the main things are to water freely when the leaves are growing, and dry off thoroughly in full sun when the decaying leaves tell that growth is completed.

Vallota purpurea of the southern provinces of Cape Colony is one of the handsomest of South African plants, and an old inhabitant of gardens here, where it is often called *Scarborough Lily*. Cultivation does not seem to have improved this plant, for unless in some few gardens where it thrives well, it is not so handsome as cultivated plants as in the fresh imported ones; also, it has a peculiarity under cultivation of dying out; and in the Channel Islands, in some cases, it has degenerated in quality, and in others been smitten in the same manner as the *Gladiolus* are frequently in gardens.

Let us hope that the time will soon come when the dwellers in South Africa may be again able to devote some attention to their flora.

NEW OR NOTEWORTHY PLANTS.

MASDEVALLIA XANTHINA, VAR. ALBIDA.

THE pretty and floriferous section of *Masdevallia* which includes *M. Estradae*, of which some have considered *M. xanthina* a variety, while others have referred it to *M. Wageriana*, is still further complicated by the charming and distinct form which has just flowered with Mr. F. W. Moore, at the Royal Botanic Gardens, Glasnevin, Dublin, and might as well be considered a distinct species as any of the others named, were it not that we have a note on the subject by its discoverer, Consul F. C. Lehmann, of Popayan, in his notes under *M. xanthina* in the Marquis of Lothian's "Mono-

graph" of the genus *Maedevalia*, so finely illustrated from drawings made by Miss Florence Woolward.

The note runs:—"In plants growing on the volcano of Solari, and at Paiobamba, near Popayan, the flowers are nearly pure white, and have not the purple spot at the base of the lateral sepals, which is a constant feature in the flowers from all other localities."

That states on the best authority that the plant under notice is a variety of *M. xanthina*, provided it is the form referred to, though there are yet one or two details which the late Professor emphasised in his remarks on *M. xanthina* in the *Gardeners' Chronicle*.

"This is a rather pretty *Maedevalia*, with bright yellow flowers, and some dark violet at the base of the sepals, which are a little narrower than the odd one; small petals whitish, lip yellowish, with a dark knob at the apex."

In this variety I fail to find any trace of "a dark knob at the apex" of the lip, but that may have disappeared by the same process of evolution as the other colours of the typical plant. It has the broadly ovate-stalked leaf of the type, thicker in substance than usual; scape 2 inches high; flowers pure white, with a yellow tinge at the base of each of the sepals, which are continued into inch-long yellow tails.

The Glanevin plant is the only plant in cultivation, I believe, the others sent by Mr. Lehmann with it having died on the journey, after the manner too frequent with these charming little *Maedevalias*. *James O'Brien*.

GARDENING UNDER GLASS.*

(Continued from p. 18.)

WATER.—Taking Nature as a guide, we often find many plants thrive under very diverse conditions as regards soil and moisture; as, for instance, among the plants which are native of our own country, the conditions under which the same species is found growing are often extremely varied. This is sometimes to be accounted for by the mutable nature of the species, which enables it to adapt itself to a variety of conditions; but generally there is one set of conditions which is most suited to the welfare of a plant when wild; and if we could be certain that we know what these conditions were, we might safely follow Nature as a guide in the cultivation of such plants. For hardy plants there is, as a rule, less difficulty in affording the conditions supplied to them by Nature; but for plants cultivated in pots under glass this is not so easy, and sometimes it is quite impossible.

The quicker the growth of the plant, and the larger the leaf-area, the greater must be the supply of water at the roots. Plants which grow slowly, and which have not a large leaf-area, will, on the other hand, require less frequent supplies. In a moist atmosphere, such as a stove, there is much less transpiration (perspiration) from the foliage of plants than in an exposed, well-aired house. All large-leaved, thick-rooted plants require an abundance of water when growing; plants with small leaves and fine roots, such as Heaths, *Leschenaultias*, &c., being satisfied with much less. Palms, Crotons, *Dracenas*, *Begonias*, *Agaves*, *Cycads*, and many others, require to be kept constantly moist whilst growing. This is the golden rule with regard to watering—no plant should be allowed to get dry during its growing season, and it is owing to neglect of this that so many plants are injured and often killed.

The second point to be considered is the

resting period, which almost all plants require. There is a popular belief that a plant cannot be rested unless it be subjected to total dryness at the root, and so far as regards a large proportion of the plants we cultivate, this is no doubt correct. But many plants are never naturally subjected to periods of drought. In temperate and northern countries vegetation is forced to rest by lowness of temperature accompanied by much wet. Take as an instance, the resting season for the plants of our own land. Here we have much more moisture, as a rule, in winter than in summer; mistakes are often made in the management of plants through this idea that to rest a plant it must be kept dry. We do not keep our *Roses* or *Camellias* dry when we want to rest them, and

SOILS.

Under the names of loam, peat, leaf-mould, and sand, we have a great variety of soils. The indoor gardener is by force of circumstances generally in the hands of the vendor of these commodities. A soil to all appearances good, may yet contain matter more or less poisonous to the plants for which it is used. It therefore behoves us to take precautions against the use of deleterious soils. Experience enables us to tell with more or less accuracy whether a certain soil is suitable for any species of plant. Even when soils of the best quality are obtained, improper mixing, preparation, condition when used, or defective manipulation when potting, may militate against successful results. There are so many chances of accident



FIG. 10.—THE LAST BOUQUET: BRUNSVIGIA JOSEPHINE, GALTONIA AND KNIPHOFIA. (SEE P. 33.)

(Taken on a mountain-farm behind Dundee, shortly before the Boers burnt down the house, and planted their big guns in the paddock. Much reduced.)

just as the conditions most suitable to them are supplied by lowering the temperature, so also it will be found equally effective with a great many of the exotics we cultivate.

The time to supply water is when it is required—not in the morning or the evening, or at any fixed time, but when the condition of the soil is such as to render water necessary. Much mischief is the result of the idea that the watering must be done only once a day irrespective of weather.

The use of water for atmospheric moisture is a matter which requires thoughtfulness. The right time to syringe, and the right way to do it; damping time, steaming—these are operations which deserve careful consideration. The application of a little common-sense ought to prevent serious mistakes as to time and method, and yet the ill-effects of too little or too much atmospheric moisture, or a too heavy use of the syringe, are too often evident in plant-houses.

in relation to soils in indoor gardening that one might almost venture to recommend the superintendence by a competent person of every operation in connection with their preparation and use. What soil to use for a given plant, if a compost of several, the proportions of each, these are questions which must appeal to the care of the thoughtful gardener. Some horticulturists manage to grow all their plants in a light loam, and it is surprising how great a variety of plants will thrive in loam in combination with sand, leaf-mould, or manure.

Peat of good quality becomes more difficult to procure every year. It is largely used by some cultivators for plants which others grow successfully without it. For Orchids, peat of very fibrous quality is generally by far the best material. Hard-wooded plants, such as *Ericas*, *Boronias*, and *Epacris*, and some stove plants such as *Dipladenias*, cannot be grown successfully except in peat. At the same time, given

* From a paper read at the Kew Mutual Improvement Society.

careful watering, a great many more plants could be grown well without the use of peat than is generally believed. As already stated, much depends upon the physical properties or mechanical condition of the soil, more perhaps than on its chemical properties. In a recent number of the *Gardeners' Chronicle* there is a record of the result of an inquiry into the constitution of Rose soils, with a view to discovering if the soil of any particular locality favourable to Roses differed in its constituents from others. The results are said to be negative. Dr. Bernard Dyer states that after careful study of the chemical results good mechanical and physical condition of the soil, and good drainage, are the probable principal factors in

hesitate to experiment with a view to finding out which soil is most suitable; if a plant is not thriving take it in hand at once, and if the soil appears to be unsuitable try another kind. On the other hand, do not change to another kind of soil if the plant is thriving.

(To be continued.)

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM × SIR REDVERS BULLER.

THIS handsome hybrid, which we illustrate (fig. 13, p. 43), was shown by W. M. Appleton, Esq., Tyn-y-Coed, at the Royal Horticultural Society, Jan. 9, when the Orchid Committee accorded it a well-deserved First-class Certificate. The beauty and stately character of the flower is evident, though

CYPRIPEDIUM × LEEANUM AS A NATURAL HYBRID.

During the last two years on several occasions flowers have been sent for determination which have been declared to have bloomed among imported *Cypripedium insigne*, and which were evidently what in gardens would be called bad forms of *C. × Leeanum*, and in one case with a much nearer affinity to *C. Spicerianum* than to *C. insigne*. The question was a very difficult one to solve, especially as the bad forms of *C. × Leeanum* which often appear in home-raised batches may have drifted anywhere. The question is again revived by a drawing and description of a supposed natural hybrid *C. × Leeanum* by Mr. Osakes Ames in *American Gardening*, Dec. 3, p. 874.

The note says:—"This supposed natural hybrid bloomed among plants of *C. insigne* imported two or three years ago. The scape is weak and droops, so that the flower hangs at a lower level than the leaves. With the exception of the narrow greenish upper sepal, the flower suggests *C. × Leeanum*. That the plant has *C. Spicerianum* in it is highly probable."

In the same number *C. × Deedmannianum* is figured. This combines the characteristics of *C. Chamberlainianum* and *C. Spicerianum*.

SOPHRONITIS VIOLACEA.

Considering that the scarlet *Sophronitis grandiflora* is such a great favourite in gardens, and that it has played a very important and satisfactory part in enabling the hybridists to secure some of the best and brightest-coloured of garden hybrids; and seeing, also, that *Sophronitis violacea* is a plant of similar habit, and with really showy flowers, quite distinct in colour and form from those of *S. grandiflora*, it is a wonder that it is not often met with in gardens, for it was first imported from the Organ Mountains in 1837, and has on several occasions been imported since. The fact is, that the cultivators never appreciated it as they have *S. grandiflora*. Plants of it have flowered well this winter, as in former seasons, in the gardens of the Right Hon. Lord Rothschild, Tring Park (gr., Mr. E. Hill). The compact-growing plants are about the same in habit as *S. grandiflora*, but are different in texture, the grooved inch-high pseudo-bulbs bearing narrow leaves about 2 inches long. The peduncles each bear one to two flowers, each about 1½ inch across, and of a bright purplish-rose colour, which is very attractive. A distinguishing feature from other members of the genus is that the ovate labellum is broader and more conspicuous than the other segments. It thrives in a cool-house with *S. grandiflora*.

VARIATIONS PRODUCED BY GRAFTING, AND THEIR INHERITANCE.

(Continued from p. 13.)

§ 3. Variations on the time or manner of flowering.

—The effects considered under this heading apply to the ordinary and not to the mixed graft. In annual plants, the time of flowering is, as a rule, retarded, but in an irregular way, and according to the plants made use of. In biennial plants, complications arise on account of the respective ages of scion and stock, when the latter is in its first year of growth, and the former in its second, the results already considered may be looked for to a great extent. For instance, a Radish on a Brussels Sprout was retarded three weeks; and a Toad-flax on a Snapdragon a fortnight. When both components are in their first year, the grafted plant flowers at the usual time in the second, the effects of the healing period having worn off by then. Sometimes a like result is obtained when two plants are grafted in their second year. When a stock is tuberous, it is thickened by its scion in the great majority of cases. Exception must be made when the reserve food is inulin, which can only be used by a scion able to "digest" it. A Lettuce grafted on a Salsafy flowered much more rapidly than the control plants. Again, on grafting a biennial in its second year upon a perennial plant, an enormous amount of retardation of the time of



FIG. 11.—CYRTANTHUS HELICTUS: NATIVE OF NATAL. (SEE P. 33.)

the production of good Roses, rather than any special features in the actual composition of the soils themselves. I have more than once been told by chemists that a certain soil would not grow a plant, and on making the experiment have proved that the chemist and the plant did not agree.

There are, of course, many plants for which the most suitable compost is known to all gardeners, but, on the other hand, there are many which require to be experimented upon before we can ascertain what soils are most suitable in combination with other conditions. It is important to look carefully after the texture or physical condition of the soils used, a condition expressed by such terms as open, loose, firm, lumpy, turfy, sandy, well-drained, &c. Never

there may be some doubt as to the parentage which is recorded as *C. × Lucie* (syn. *Smithi*), (*Lawrenceanum × ciliolare*) × *C. insigne*. Nevertheless, it is quite possible that the record is correct. The plant, with its pale green leaves, having a fine, dark green reticulation, and also the flowers, bear some resemblance to *C. × Swinburnei magnificum*. Considering that the plant was a comparatively small one, the size of the flower is extraordinary, and augurs well for its future when fully grown.

The fine dorsal sepal is of a pale green tint in the lower half, with dark chocolate-purple dotted line; the upper portion being pure white, with the basal dark lines continued into it, but of a deep rose-purple. The petals are yellowish, tinged with rose on the outer halves, and blotched with dark purplish-chocolate. Lip greenish, with the ace tinged with reddish-brown.

flowering was obtained. Such is the exceptional case when the Salsafy is grafted on Scorzoneria, for examples, grafted in the month of March did not flower until the following year. In retardation the healing process plays the important part; in acceleration the difference between the functional activities of the two plants produces the results, at least in the majority of cases.

When a stock has no reserve food that can be used by the scion, the latter uses its own supplies to form reproductive organs, and vegetative growth is stopped, as in the case of the Lettuce on Salsafy. Should the stock be without reserves, but able to absorb easily, as in the case of Cauliflower buds on a young Cabbage, after healing, which is a slow process, vegetative growth is continued while the stock is getting the materials from the soil which the scion needs, and flowering is delayed.

From the practical point of view these data may be of considerable value; by retarding the time of flowering until normal plants have passed that stage, hybridisation may be avoided, and by hurrying on the reproductive period ripened fruits may be obtained from plants that, as a rule, flower too late in the year for the seeds to be of any use.

In perennial woody plants flowering time is, normally, reached but slowly, and only when the tree is adult; the period of infertility varies with the plant. Grafting may lessen the purely vegetative period. With well chosen scions it is possible to obtain fruit in the first year. This must not be confounded, of course, with the hurrying on of the fruiting period in annual plants; these are induced to flower earlier in the year, the trees blossoming, with rare exceptions, at the ordinary season, but in an earlier year.

Grafting has also an effect on the arrangement of the flowers. These may, for instance, be crowded together; difficulties in flowering may also occur; petals may be crumpled, buds may become detached, and the blossoms may come to nothing, when those of control plants produce seed.

§ 4 *Parasites in grafting.*—The degree of resistance which plants offer to the attacks of parasites is of supreme importance in horticulture. Such resistance is increased with the vigour of the plant, and is lessened if the latter suffers or finds itself in unfavourable conditions, and grafting may have a marked bearing, temporarily or permanently, on the question.

In all grafts there is a time of provisional union, when the plants are most open to the attacks of parasites. When permanent union begins there is less danger it is true, but they are by no means safe. The kinds of parasites change, and they make themselves felt to a greater or less extent according to the perfection of the graft-union, and the reciprocal conformity of functions in the two grafted plants. During the first period molluscs, such as slugs and snails, are most to be feared; their attacks are due to the lessened vitality caused by the operations in grafting, and not at all to any modification of tissues. Parasitic worms may enter through the wounds or soft tissues; woodlice and millipedes if in great numbers may endanger the success of grafts, and they attack by preference tubers and tuberous roots. There is little to fear from insects at this stage, though small beetles may do much damage. A species of *Cheimatobius*, for instance, lays its eggs in the buds on Apple scions, which should be carefully examined and the eggs removed, or some, if not all, the buds may be destroyed. Moulds do not develop unless there are sufficiently damp conditions, and the stock which has too much water suffers more, as a rule, than the scion which has too little. In the open air, except during heavy rains, moulds do not assume any importance, though when in bad practice the graft and stock are placed under cover they may be of too frequent occurrence, seeing that neither plant is in the surroundings which are suitable to it. When the provisional union is coming to an end, careful attention is necessary to ward off the ravages of parasites. Insects and millipedes come first in order of

importance, then vegetable parasites, and lastly, molluscs, which in the previous consideration were most to be feared. Such a scheme is, of course, by no means absolute, and while woody plants suffer from the members of the first two categories, herbaceous grafts are most likely to be destroyed by those of the last. M. Daniel treats of this aspect in further detail, and sums up the facts by pointing out that the less perfect the connection between scion and stock the more likely are the attacks, saying, "Every badly-made or ill-assorted graft opens the door to parasites."

(To be continued.)

FLORISTS' FLOWERS.

AURICULAS.

IN the proper treatment of these plants during this month, much depends upon the weather. The frames should be covered with mats in frosty weather rather than afforded artificial heat; the lights being drawn off when the weather becomes mild, and air afforded always when there is no frost. Abundance of fresh air is very essential to the Auricula at all times. Let all dead or decaying leaves be removed, and the surface soil stirred occasionally, to prevent the growth of moss, and admit air to the soil. But little water will be required this month, and do not wet the leaves. Upon the first sign of green-fly, fumigate the frame with tobacco-smoke—a most important matter, the insects multiplying very rapidly, and committing havoc on the plants.

HOLLYHOCKS.

Where it is desirable to increase the varieties by the aid of cuttings, place the plants in a temperature of about 50° by night to excite them into growth. As soon as the shoots are long enough, cut them off with a heel, put each singly in a small pot, using sandy soil, with a pinch of white sand at the base of the cutting to induce the quick formation of roots. Let the pots be plunged in a gentle bottom-heat, and cover with a hand or bell-glass; afford water sparingly, and wipe the inside of the glasses night and morning to remove condensed moisture, as too much of this or steam will cause the cuttings to decay. The ground in which these plants are to grow should be deeply trenched and heavily manured. If this is taken in hand at once, it will have settled down near its natural level at planting time—April. The manure, too, will be partly rotted, and in a better condition for the roots. Once or twice between now and then the surface soil will be all the better if forked over, choosing dry weather for the work.

PANSIES.

in pots will need abundance of air to keep them stocky and in health. Dust the inside of the frame with soot to ward off slugs which are partial to the succulent leaves and stems, especially if dead or decaying leaves are allowed to accumulate on the surface. A nightly examination with a lamp will be the means of catching many when feeding. Plants growing in beds or borders may need pressing into the soil with the fingers, as the frost is liable to loosen the roots by the upheaval of the soil, thus disturbing the root action. *E. Molyneux.*

NEW STRAIN OF POTATOS.

Few of the great seed firms associated with gardening have done so much to popularise the Potato as a garden or field vegetable, and as a great article of food, than has the house of Sutton & Sons of Reading. It was that firm that put into commerce the famous Red-skin Flourball, one of the very first of the great disease-resisting strains. This was followed by the introduction of the far more famous and valuable Magnum Bonum. Since then we have seen scores of fine varieties put into commerce

from Reading, varieties that have in gardening become like household words, so widely are they both grown and known. But these popular introductions were of other's raising, and not those of the firm. So far in the matter of Potato-raising, Messrs. Sutton had confined their attention to intercrossing original species with some garden varieties, chiefly for experimental purposes, but in relation to the production of varieties from garden Potatos alone, they had not, up to within the past two years, competed in any way with ordinary raisers. But death, old age, and other causes have materially removed from further active service many of the old Potato-producers. Clark of Christchurch, and Laxton of Bedford, have passed away. Fenn of Sulhampstead, Lye of Market Lavington, and Ross of Newbury, as well as the writer, have almost entirely ceased to intercross or otherwise raise new varieties, so that the field is largely cleared of the old raisers, and there is thus ample room for younger ones to come in and take up the work where others have left it.

Undoubtedly, these raisers have in their work done very much to help bring Potato production up to a high level of excellence. What splendid Potatos we have to-day, and with them existent, how difficult, as is found in so many things horticultural, is it to excel what has thus been created. But the gardening community is never satisfied. Even when perfection is reached, it sighs for yet greater excellence, and so it is with Potatos. We want some that are earlier, or more productive, or that produce a greater proportion of even table-used tubers; also of more perfect form and higher table excellence, for, admittedly, there is ample room for improvement in that direction. Then we want much greater disease-resisting constitution in our varieties than so far has been found, and it is particularly in relation to this feature that Messrs. Sutton & Sons, in embarking upon the work of Potato-raising from seed, have utilised as a parent their excellent Sutton's Flourball, which is not at all the old Red Skin variety previously referred to, although the tubers have bright red skins, but is a mid-season variety of somewhat dwarf habit and a heavy cropper, that so far in the firm's experience has never given one diseased tuber. The first crosses, and modest ones, were made in 1897; but the chief ones, in which the Flourball played so important a part as a progenitor, were made in 1898. The seed thus produced was sown in pans and shallow boxes under glass at the end of March, 1899, and after being duly pricked out thinly into other shallow boxes, and grown on strong, were planted out into the open ground of the seed-farm on May 17, and in rows 2 feet apart, being thence treated just as ordinary Potato-plants from tubers are. The product of every plant lifted and placed in a separate box or partition, I saw the other day in the firm's huge warehouse, set out in blocks according to parentage. One of the most noticeable products was that from crossing the popular Up-to-Date with pollen of the round Red Flourball. It was the product of two seed-balls, and eighty-one plants resulted. In this instance the female parent seemed to be the dominant partner in respect of colour, as only about twelve out of a total of seventy-eight diverse roots were red, all the others being white. But in relation to form, there the male parent seemed to dominate, as the roundness of the Flourball was very much in evidence; but in the matter of productiveness the diversity presented was remarkable. Some roots, no doubt very early ripeners, gave but a couple or three tiny tubers, in all not exceeding half an ounce in weight. But as the other end of the block of seventy-eight boxes was reached, the increase was marvellous, passing into pounds and dozens, until finally culminating in 6 lb. and some forty to fifty tubers. This result will surprise many who have regarded Potato-plants direct from seed as being capable of producing a very few small tubers only. Here, not only in connection with this one cross, but associated with all, were sorts from seed that thousands of growers during the past year would have been delighted to find

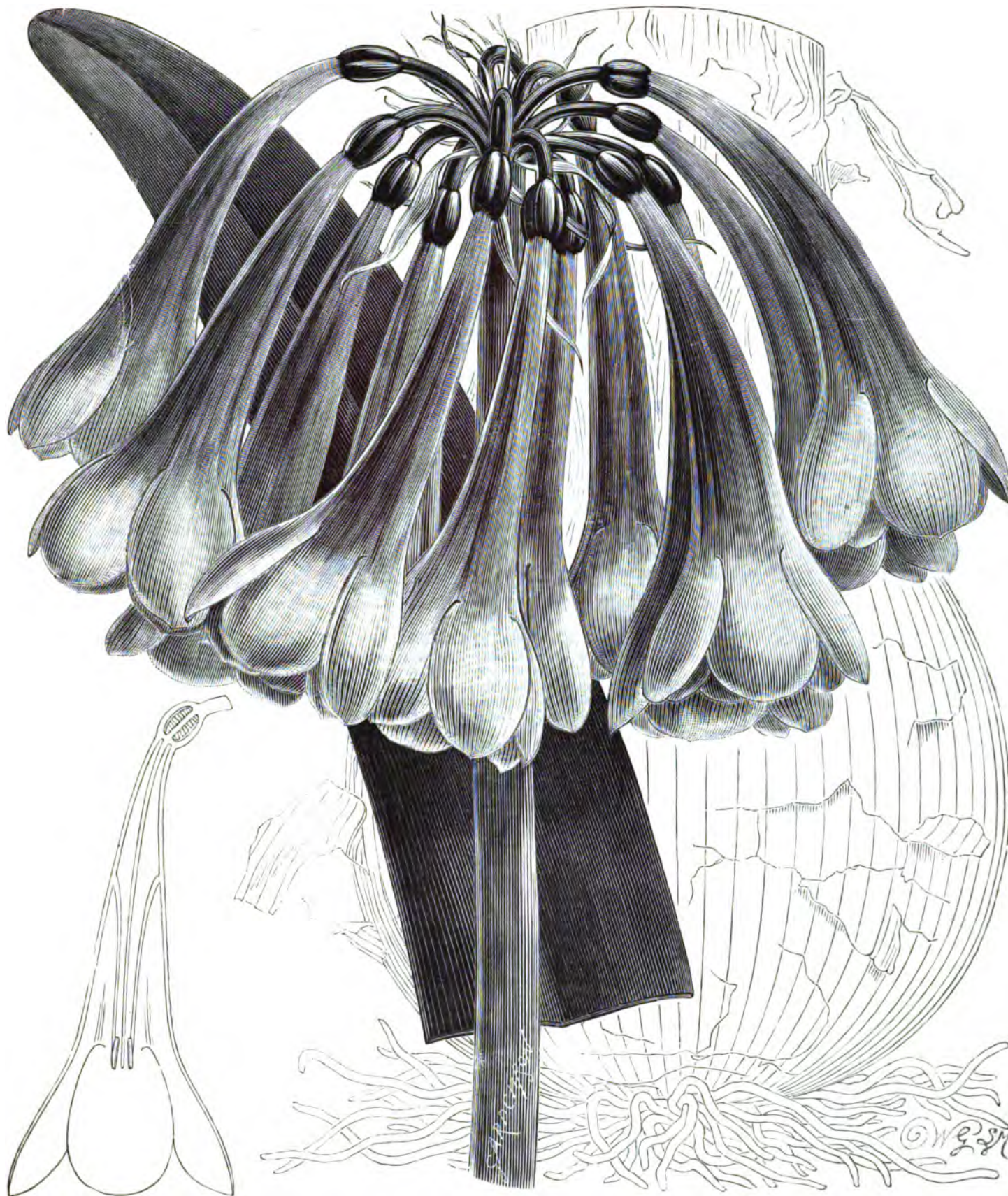


FIG. 12.—CYRTANTHUS OBLIQUUS: NATIVE OF NATAL. (SEE P. 33.)

equalled in production amongst their tuber-raised plants.

The next cross was that of Sutton's Kidney Reliance with the Sutton Flourball, the latter again the pollen-parent. Here was a total of fifty-six boxes, all from distinct seedling-plants. In this case red skins predominated, but

Reliance Kidney has a slightly tinted skin, and the result was not unexpected. Here the smallest produce was one tiny tuber one-sixth of an ounce in weight, and the heaviest one of fifty tubers of admirable seed size, and weighing 3 lb. 5 oz. But here again the round form predominated. Then came Windsor Castle as the seed-bearer, with

Flourball as the fellow parent, the product being forty-two distinct seedling productions. The crops ranged from one very small tuber up to 5 lb. 2 oz., a really remarkable result, and giving over forty tubers to plant next spring if so desired. Here all were round in form, samples clean, and handsome, as might well have been anticipated. The succeeding

block was from *Magnum Bonum* female, with *Flourball* again the male parent; red colour here was much in evidence, and round form greatly predominated.

The crop gave seventy-one lots, ranging from 4-oz. to 3 lb. 4 oz. Schoolmaster as the male, with *Flourball* as the female parent, the position being here reversed, gave nearly all reds, there being but eighteen whites out of fifty-eight diverse seedlings. Tubers ranged as before, from the least up to over 3 lb., and were generally smaller than those found in the preceding crosses. In 1899 *Early Puritan*, female, was crossed with *Early Regent*, male. The produce in plants, owing to the drought of 1898, was so tiny that they were not lifted, but left in the ground all the winter, then covered up with long litter. Some twenty-two lots of these were kept last year, but even under such conditions gave great promise, some roots giving quite a large produce, and very early. Just two or three small tubers lifted out in 1897 were planted in 1898, and six tubers saved from each and planted last year gave really quite heavy crops, as seen in baskets placed for inspection. One or two other crosses were also seen, but those mentioned were the chief. There will have to be a huge trial during the summer, and whenever the lifting takes place may I, like the chronicler of Johnny Gilpin, be "there to see." A.D.

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen.

Temperatures, &c.—The changeability of the weather during the present winter has rendered the regulation of the temperature very difficult. On many occasions frosty nights have been followed by mild, wet days, and then, unless great care was taken, the temperatures inside were much higher than was desirable. A high early morning temperature is more injurious to Orchids than at any other part of the day, for measures to reduce it have to be adopted, whereas in the natural course there should be an increase. During unstable weather, the fires should be of small dimensions, and the furnace clean and free, ready for any emergency. The temperatures of the various departments during this and the next month, so far as fire-heat is concerned, should approximate to the following figures:—

	Morning	Midday	Night.
East Indian and <i>Phalænopsis</i> houses	65°	70°	68°
<i>Cattleya</i> and Mexican houses	60°	65°	63°
Intermediate house	55°	60°	58°
<i>Madevalla</i> house	50°	55°	53°
<i>Odontoglossum crispum</i> , or cool-house	48°	53°	50°

With the aid of sunlight, the registered figures may exceed those tabulated, and on the other hand they should not be quite so high during very frosty weather. Until the early morning temperatures have advanced a few degrees, an increase of air should not be afforded, or any water afforded, or damping down performed.

Chysis bracteescens.—Plants resting in a cool part of the *Cattleya*-house since the pseudo-bulbs were matured, will now begin to make a renewal of growth; and they should be placed where there are more light and heat. Water should still be sparingly applied, its needs in this respect being indicated as heretofore by a tendency to shrivel. Until the flower-buds have appeared, little or no root-action occurs, and when it does an increase of water becomes essential. When the flowers have passed away is the time to repot or furnish the plants with new rooting materials. This and other species of hybrids thrive best when planted in small perforated pans, having large quantities of drainage, and a compost of two parts peat fibre, one of fibry loam, and the remainder of fresh sphagnum-moss and finely broken potsherds. Suspend the pans in a position as stated above, and water sparingly until root-action is general and free. The young growths are peculiarly adapted for trips to ravage unseen, and frequent fumigation of the house they occupy should occur to keep them under, or disfigurement and decay will follow.

Platyclinis.—This genus contains several desir-

able graceful flowering kinds seldom met with, owing to the rage for large and more highly coloured Orchids. *P. glumacea* is now in the act of developing new growths and flower racemes, and a more liberal supply of water should be afforded. Immediately the flowers fade, repotting where needed should take place. Excepting when the centre has become bare, division of the ball should not occur, as these plants do not take kindly to disturbance of this nature. Well drained pots or pans, and a compost of two parts peat to one of fibrous loam, and one of chopped sphagnum should be used, sprinkling in a liberal supply of finely broken crocks as the work of potting proceeds. A light warm position in the *Cattleya*-house should be selected for it during the growing period, watering it sparingly until the roots have entered the new soil; afterwards, as the season advances, copious draughts are necessary. *P. uncata* has just gone out of flower, and until new growths and roots appear, the plants should be kept in an intermediate temperature, and watered at rare intervals. The strong-growing *P. latifolium*, requires more warmth, but otherwise the same treatment as the last-named; likewise *P. Cobbiana*. *P. filiformis* thrives best when grown in a suspended basket or perforated pan. The temperature and other prevailing conditions of a *Cattleya*-house fulfil its requirements in those respects. It is now resting, and should have water given it at long intervals, until the new growths project their tiny thread-like roots. Red-spider attacks these, and frequent sponging of the leaves is requisite to keep them free.

Dendrobium aureum, and hybrids derived from it, such as *D. Ainsworthii*, *D. Leachianum*, *D. splendissimum*, &c., though commencing to grow, should not be given much water, or otherwise encouraged to make rapid growth, until the season is further advanced. They should occupy a position where all available light can influence and benefit their tender succulent growths.

THE FLOWER GARDEN.

By J. BENBOW, Gardener to the Earl of Ichester, Abbotsbury Castle, Dorset.

Seed Sowing.—Hard-coated seeds, as those of *Cannas*, *Acacias*, *Dracæna indivisa*, &c., all of which are useful in sub-tropical bedding, may be sown at once. Soak the seed in water in a moderately high temperature for a day or two. In the meantime, prepare a fine, rich soil, and crock the necessary pans or pots. These may then be filled with the soil, and placed in heat to await the sowing of the seed. *Begonias*, if required to flower the same season, must also be sown. Great care is necessary, however. The soil must be finer, and the seed should be barely covered with it. When the seeds have been sown, place the pans on a shelf near the light, and exercise the greatest care in watering. If the atmosphere be kept moist, one thorough watering will be sufficient until the seed has nearly germinated.

Picture Shrubs and Small Trees.—These include *Sambucus* (Elder), with yellow and white variegated foliage; *Rhus typhina*, *R. Cotinus*, *R. coccinea*, &c. *Aralia mandchurica*, *Amygdalus atro-purpurea*, *Prunus pissardi*, and any others which make rank over-vigorous growth annually may be spurred back closely if crowding of the heads is feared, or there is a likelihood of other shrubs being overgrown. Do not, however, give any of the shrubs a shorn or unduly formal appearance, but leave some middling long branches at full length, in order to afford a symmetrical and natural contour.

The Planting of Deciduous Shrubs.—If the soil is light, and it has been prepared by manuring and trenching, or if stiff by draining and the addition of coarse strawy manures, planting may now be proceeded with whenever the soil is dry enough to admit of being trampled upon without injury, some finely-sifted soil or potting-bench refuse being first distributed evenly over the roots of the plants, following this with the staple. In planting, first ascertain if the roots are sufficiently moist, if the plants have been bought of a nurseryman, and should there be signs of shrivelling of the bark or rind-covering of the roots, lay them in water for a hour or two, or in soil, and afford water copiously, planting the following day. Bruised or mutilated roots should be neatly removed. It is better to mark the position of each shrub with a long stake, paying attention in doing this to the probable size of the plant or groups of plants will

grow to. Unless this be done much of the natural beauty of the same will be lost. Standard trees and the taller-growing shrubs should be secured and tied to one, two, or three stakes, as may appear necessary. In light soils it is always advisable in planting at this season to pour water copiously about the roots before finally covering them, and even heavy, if dry, should be similarly served.

Bedding Plants.—If many plants are used, propagation of *Verbenas*, *Lobelia* of the *erinus* type, *Alternantheras*, *Coleus*, *Fuchsias*, &c., the established or stock plants at once commence, they should be encouraged to produce strong shoots by affording them a temperature of about 63°, keep them meanwhile close to the front glass on shelves, or near the roof. Watering may be afforded a little more freely to such plants. When the cuttings are large enough, prepare the required number of deep pans or pots, well draining them, afterwards filling them with fine leaf-mould two-thirds, and loam one-third, with plenty of sharp pit or sea-sand. Having done this, make the cuttings, insert them firmly, and afford tepid rain-water to settle the soil about them. On bright days the syringe may be used early in the day, floor and walls damped regularly if a brisk temperature is maintained.

Pelargoniums.—Cuttings of these will now root readily when obtainable from the autumn-struck plants, or from the old stools, if the stock be got into growth, by the use of gentle warmth. Care, however, is needed so as not to spoil the stock-plants by cutting them too hard. Afford both cuttings and stock-plants plenty of light in order to prevent drawing and the culling, a bottom-heat of 75° to 80°.

Celosias pyramidalis.—A sowing may now be made of these attractive plants.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westcombe, Tetbury, Gloucestershire.

Potatoes.—Where new Potatoes are required early in the season, the tubers may now be started into growth. Trays or boxes about 3 inches deep are the best for this purpose. A layer of leaf-mould may be placed over the bottom, and the sets placed upon this at about 2 inches apart. Cover them with more of the same material. They should then be placed in a humid atmosphere at a temperature of 55°, and kept moist by occasional syringings. As soon as the eyes commence to push they should be placed near the light, and they will soon be strong enough to place in pots and pits. Sutton's Ringleader, Veitch's improved early Ash-leaf, and Sharpe's Victor, are excellent varieties, being short in the haulm, very productive, and of good flavour.

Mushrooms.—To keep up a continuous supply of these excellent beds may, at about this date, be made in the open air with stable-litter from corn-fed horses, the long, strawy portion of which should be removed, only the droppings and short litter being made use of. This material should be placed in an airy shed, in quantity enough to form the beds. It should be spread on the floor to the depth of 2 feet, and turned at least once a week so that it may lose a portion of its heat, and become fermented equally in all parts. For an out-of-doors' bed the ridge is the best, and this should have a base of from 4 to 5 feet, and a height of 3 feet, boards 6 inches in depth being nailed to stakes driven into the ground on both sides. Another method of making a bed consists of taking the soil out to the depth of 1 foot, and 5 feet in width, and of any desired length. The manure should then be built up so as to form a ridge from 4 to 5 feet high. Some straw should then be loosely placed over, and testing-sticks put into the bed at various parts. Where the heat is subsiding and slightly below 80°, the beds may be spawned, and in order to prevent the spawn from crumbling when broken, the bricks should be soaked in tepid water, and then divided into about nine pieces, and inserted triangularly in rows 6 inches apart and 3 inches deep in the materials of the bed. The surface should forthwith be covered with a layer of fibrous loam 2 inches thick, beaten down firmly with a spade. Having done this, place as much dry straw over the bed as will retain its heat for some weeks. Field-hurdles thatched with straw should then be placed in a slanting manner and securely fastened over the whole.

Tomatos.—Seeds of early fruiting varieties, viz., *Chemin Rouge*, *Early Ruby*, or other approved varieties, may now be sown in pots filled with a mixture of sifted leaf-mould and loam in equal proportions, and firmly pressed down. The seed should be sown thinly and slightly covered with soil before being placed under handlights to germinate in a temperature ranging from 55° to 65°. After germination has taken place, admit air to the plants gradually, and afford full exposure to the light before drawing takes place.

Forcing French Beans require a temperature of not less than 65°, full exposure to the sunlight, and a certain amount of humidity. Pots 7 inches in diameter are best for the earliest crop, the blooms setting more freely when the roots are severely confined. A good mixture of soil for Beans consists of fibrous loam three parts, decayed manure one part, together with a sprinkling of half-inch bones, the whole being prepared some weeks previously. Before sowing, half fill the pots with this soil and make firm; then sow and cover lightly. The stems of the plants should be earthed up gradually as growth proceeds. *Ne Plus Ultra*, *Syon House*, and *Williams' Earliest-of-All*, are capital forcing varieties, especially the last-named, which will produce excellent pods seven weeks from the time of sowing the seeds.

PLANTS UNDER GLASS.

By T. EDWARDS, Plant Foreman, Royal Gardens, Frogmore.

Hardy Forcing Plants that are in the open should be established in pots, and introduced to gentle heat. *Lilacs* in variety, *Guelldres Roses*, shrubby *Spiræas*, *Ghent* and *Mollis Azaleas*, are invaluable for the supply of flowers for cutting, and as plants for conservatory and house decoration. It is a good plan to have two batches of each species of plant, and lift them alternate years, thus giving time for the plants to recover from forcing, and become well furnished with bloom. The semi-double Cherry (*Cerasus Watereri*), is the most beautiful plant for forcing introduced during recent years, but is best permanently grown in pots and plunged outside during summer and autumn. *Deutzia gracilis* is also best kept in pots and treated in a similar way. Both should now be top-dressed with rich material, and moved to a cool-house.

Azaleas, Camellias, and hard-wooded plants generally, require to be watered very carefully, keeping them on the dry side rather than otherwise for the present, and quite cool. Keep a sharp look-out for thrips, and when there are any signs of them, use the XL-All vaporiser at intervals of eight or nine days. *Camellias*, planted out and in pots, are greatly benefited by alternate doses of clear water and liquid-manure from a farmyard. At this time of year the latter may not require to be diluted, as the considerable rainfall passing into the tank prevents any excess of ammonia.

Acalyphas, Variegated Abutilons, &c.—The propagation of these plants should be attended to without loss of time. Cuttings of *Acalypha hispida* (*Sanderiana*) strike readily in strong heat, and the plant is readily grown in good loam. As soon as the cuttings are well rooted, move them into 6-inch pots, and grow on rapidly; if large plants are required before flowering, repot before they become pot-bound and syringe the tops frequently, red-spider being a very troublesome pest, and neglect soon causes disfigurement of the foliage. No stopping is required; single stems from 2 to 4 feet high, well furnished with foliage and "catkins" down to the pot, make striking objects. *A. h. tricolor* and other varieties will make good plants in 48's. The colouring of the leaves is very handsome. *Abutilon F. Sawtizer* is a most useful plant, of good habit, for table decoration; an intermediate-house suits its needs, and it grows best in a mixture of equal parts of peat and loam, with plenty of sand. It is also likely to be found useful as a bedding plant, though the variegation is not so white as when the plant is grown under glass. The propagation of this and other varieties may soon be undertaken, with the usual precaution of getting the stock plants into growth.

Caladiums may now be shaken out of the soil and started in pans filled with sand. If an increase of stock is desired, plunge the pans in a brick bottom-heat, and when started, divide the corms with a sharp knife; dip the cut parts in powdered charcoal, and pot in a light mould in 60's.

C. argyrites can be increased to any extent, and grows more freely from parted corms than from old ones. *C. minus erubescens* is equally free, and it makes a good companion to *C. argyrites* when used for the edging of groups.

Hydrangea Hortensia.—Plants may now be placed in heat; yearling plants are more useful when grown in 48's; older plants should have their shoots shortened back to flower-buds, and be top-dressed. *H. paniculata*, which flowers on the current season's wood, should be pruned to two or three buds, and treated in a similar manner; when in leaf syringing it frequently, it being very subject to be overrun with red-spider. *A. Thomas Hogg* is a pure white variety, of slender growth, whose shoots may easily be trained to any kind of shape, and is a most valuable plant for indoor culture, lasting a long time in flower.

FRUITS UNDER GLASS.

By J. ROBERTS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Strawberries.—A succession batch of these should be introduced into structures where the conditions are favourable to a gentle start. The first condition necessary to success is a well-rooted, well-developed crown. Plants of this description do not require bottom-heat to make a healthy start. As a preventive against mildew, dip the plants in a strong mixture of sulphur and water. If time permits, top-dress the whole stock of plants, using good fibrous loam, with a little burnt-earth and soot added. This will encourage new roots from the collar of the plant, which will be of great help. The varieties we favour for early work are *Royal Sovereign* and *La Grosse Sucrée*; and for late crops, *British Queen* and *Leader*. A temperature ranging between 45° and 55° for all plants under cover will be sufficient for the present.

Cherries.—The ease, certainty, and also the cheapness, with which Cherries can be forced, should lead to a more extended culture of these fruits under glass. The improvement in the size and quality of the fruit, and also the length of time it will hang after ripening, are additional inducements to plant a house where good varieties of the best kinds of dessert fruit are required during the months of May and June. Any well-ventilated glasshouse, facing south and west, or a span-roofed house running north and south, will suit Cherries. A border 2 feet deep, resting on a good body of drainage materials, and consisting of good garden soil, with a slight addition of turfy loam, and plenty of old mortar-rubble and chalk, will form a compost rich enough for Cherries. The best system of training to employ in order to fill the house quickly with bearing-wood is three three-branched cordons. Trees of this description furnish the trellis much quicker than do trees fan-trained. The most reliable varieties for furnishing heavy crops are the following, which ripen in close succession, viz., *Early Purple Glean*, *Frogmore Early Bigarreau*, *Black Tartarian*, *Monstreuse de Mezel*, and *Bigarreau Napoleon*. The only forcing required is to keep a steady temperature ranging between 45° and 50° up to the flowering period, and this can mostly be accomplished without the aid of fire-heat.

Plums.—To obtain the highest quality in this fruit, and to crop reasonably early in the season in cold districts, glass protection becomes necessary. Last season we planted a lean-to house 180 feet long with young palmette-trained trees of the best dessert varieties; these trees are now well-budded, and afford promise of a good crop of fruit. They are mostly five and seven-branched trees, and by being trained vertically the house will be filled in three seasons. Only a narrow border is provided, and the trees are lifted annually, which develops a dense mass of feeding-roots. Whatever kind of house is adopted, ample ventilation must be provided. The house here is built on Rendle's patent principle—a system that affords a great amount of air in small quantities over all the roof-glass. The soil of the border should be of a retentive nature, capable of holding moisture for some long time. This must be corrected a little by the addition of burnt garden refuse and limestone grit. The following are the best varieties to plant: *Early Transparent Gage*, *Golden Esperen*, *Jefferson*, *Denniston's Superb*, *Oullin's Golden Gage*, *Bryanston Gage*, *Kirke's*, and *Coe's Golden Drop*.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener, Stoke Edith Park, Hereford.

Peaches and Nectarines.—Where the unloosening of the trees and tying the branches to stakes placed some little distance away from the walls, with the view of retarding growth, is practised, the matter should soon have attention. This will afford an opportunity for carrying out whatever pruning is necessary, so that when the time comes to refasten the branches to the wall it may be done expeditiously. Here it is found that equally good results are secured by carrying out the pruning and training at the same time as the other trees. The pruning of Peaches and Nectarines is a small matter if proper attention was paid to the removal of shoots that fruited last season, and it will consist of merely thinning out any superfluous young bearing-wood, and trimming off jagged cuts or snags which could not be conveniently done in the autumn. The pruning of neglected trees will consume more time, as it may be necessary to thin out branches as well as bearing-wood. Much branch-thinning should be avoided as far as possible, as severe gumming often ensues afterwards; but if the branches are much crowded it is imperative to cut out a few of the older ones, so as to make space for younger and more healthy wood. The thinning of the bearing-wood is the next consideration, and this should be done to such an extent that the young shoots will have a clear space of 4 inches between them when trained out, and sufficient should be left to furnish the tree from the centre outwards. Regarding the selection of wood to be retained, give that which is best furnished with fruit-buds and of medium strength the preference. Well-ripened shoots should be left at full length, and cut back only in cases of necessity. Unripened shoots should be pruned back to sound wood and to triple buds, or a single good wood-bud.

Insects.—If the trees are infested with scale, let them be dressed with an insecticide at once if the trees are to be left until the last moment before being trained out; but if they are to be nailed or tied, as the case may be, it is better to defer the cleansing until it is completed, and then to spray them with caustic alkali solution.

Wall Pears.—Like all other hardy fruits the cultivation of Pears, particularly in cordon form, now meets with greater attention. Where proper cultural treatment was accorded the trees during the past season the pruning will now be of a simple description, consisting of cutting back spur-growths left too long last autumn, to two or three buds, and shortening back leading-shoots, whether on cordon or other forms of tree, as far as may appear necessary. Trees on which the spurs have become of great length should have these cut back, with a view of obtaining new growths from the portion left. On some trees spur-pruning may perhaps be unnecessary, but it frequently happens that the buds on the spurs are weak and debilitated through being over-crowded. Here a careful thinning is beneficial, and such is generally found to be more necessary with trees on the Quince than on the Pear stock. Old cordon trees may be rejuvenated by bringing up a new shoot from the base; and young shoots should be left at convenient points in fan and diagonal-trained trees, with a view to replacing worn-out branches in the near future.

Training, Nailing, or Tying.—Some of the hands, if possible, should commence this work directly the pruners have made a good start. Many gardeners wash or dress the trees before this is done, but if well-proved insecticides are used, or the trees sprayed with caustic alkali solution, this may be done afterwards. The great point in training fan-shaped trees is to regulate and lay out the main branches first; these should be secured with tarred twine. Then follow with the subsidiary branches, and afterwards the young wood. If this is done properly, each branch and shoot will then be pointing in an outward direction. In the case of diagonal trees, keep the branches at an equal distance, and as straight as possible. Examine all shreds and ties, and replace with new any that need to be removed. Allow plenty of room when making ties of every description; in the case of wires, pass the material twice round the wire before securing the branch or shoot. Do not tie a strand of raffia to the tip of a shoot to draw it out straight, or it may be strangled. When twine has to be used to secure a branch in position, and there is much strain, place a shred or a piece of old india-rubber tubing between the bark and twine.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, JAN. 23 { Royal Horticultural Society's Com-
mittee.

SALES.

MONDAY, JAN. 22.—Ornamental Trees, Roses, Spineas, Tuberoses, &c., at Protheroe & Morris' Rooms.

WEDNESDAY, JAN. 24.—Japanese Lilies, Greenhouse Plants, Azaleas, American Plants, Carnations, &c., at Protheroe & Morris' Rooms.

FRIDAY, JAN. 26.—Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—33°.

ACTUAL TEMPERATURES:—

LONDON.—January 17 (6 P.M.): Max. 52°; Min. 40°.

January 18: Fine; light frost.

PROVINCES.—January 17 (6 P.M.): Max. 47°, Scilly; Min. 37°, N.E. Scotland.

The Gardeners' Royal Benevolent Institution, the annual meeting of which took place on Friday, the 12th inst., is making satisfactory progress. Its usefulness in alleviating the evils attendant on sickness, poverty, and age, is increasing proportionately. Under the guidance of the Treasurer, Mr. H. J. VEITCH, the finances are in a very satisfactory state, so that at the meeting to which we refer it was possible to elect ten candidates without the trouble consequent upon election by vote in the usual way. These candidates were all persons who, at some time or other, had contributed to the funds of the Society, and helped while they were able to succour those less fortunately placed. In addition to these, six other candidates who had not subscribed to the charity were, by the votes of the members, elected as pensioners. Some of these must feel, we imagine, in the position of those who have had coals of fire placed on their heads.

Of late years some subsidiary funds have been established which have gone far to remove certain objections which used to be raised. The Victorian Era fund, now completed, was established for the purpose of assisting those members of the Institution during the interval between their application and their election. We call them members of the Institution because they have been subscribers for longer or shorter times. The benefits of this particular fund do not extend to those who have not been subscribers.

Candidates, then, who have done what they could in their days of comparative prosperity, are now certain to obtain some relief at once, though they may still have to wait a year or two before they can be admitted to the full benefits of the institution.

Another fund has lately been started, which will assuredly commend itself to the fraternity—the Good Samaritan Fund. The object of this is to afford immediate temporary relief to those in trouble or sickness whose cases have been investigated by the committee.

These two additions greatly enhance the power of the Gardeners' Royal Benevolent Institution for doing good. During our own recollection the number of pensioners has been largely augmented, the amount of the pensions has been considerably increased, and now these two new funds have been instituted. During

all this time, the financial position, always sound, has become more and more satisfactory. There will, no doubt, be large demands this year on our self-sacrifice and our means, but we must take care that while doing our utmost in other directions, we maintain the efficiency of those institutions which it is our special duty and privilege to support.

The Committee gratefully acknowledge their indebtedness to the Stewards, donors of flowers, and to the horticultural press. They likewise tender their thanks to the Honorary Secretaries of the several auxiliaries for their services, and also to other friends throughout the country, who, by arranging concerts, flower stalls, opening their gardens, and in other ways have so materially assisted the Institution. The Committee are glad to announce the formation of an auxiliary at Reading under the presidency of CHARLES E. KEYSER, Esq., and the treasurer-ship of ARTHUR W. SUTTON, Esq. Their thanks are specially due to Mr. SUTTON, to whose influence and indefatigable exertions the establishment of the branch is due.

To the Messrs. N. M. ROTHSCHILD & SONS, who have again contributed their generous annual gift of £105; to the anonymous donor who left four £5 notes at the office "In Memory of Robert Fortune;" and to other friends too numerous to mention who have so generously given to the funds, the Committee offer their thanks.

In respect to the election of pensioners to the Fund, it was decided that William Armstrong, Andrew Bryan, Thomas Chapman, George Chitty, William Hole, Francis Nixon, Samuel Smalley, Richard H. Smith, Joseph Willis, and John Wilson, whose cases had been investigated and appeared to be deserving, be placed on the pension list without election under the power conferred by rule iii., 5.

The additional candidates subsequently elected were Isaac Page, 4519; Lucy Mitchell, 4282; Jane R. Edwards, 3986; Thomas Evans, 3383; William Thomas, 3228; Isabella Watt, 2845. William B. Glasscock received 3346 votes, and would have become a recipient of the pension but for the fact that since the list was published his circumstances had so changed as to render pecuniary aid from the Institution unnecessary.

It was mentioned as remarkable that since the list had been ready, four candidates had died. There were only thirty-seven votes wasted this year through papers not being signed, as against nearly 600 last year.

PATRICK O'MARA.—It is needless to detail the nationality of this gentleman. He is the business-manager of PETER HENDERSON & Co., and has lately been elected President of the New York Florists' Club.

A. HERRINGTON.—A former Chiswick pupil, at one time attached to the Garden, has been elected a Vice-President of the New York Florists' Club. Mr. HERRINGTON has only been in America for four years, so that credit is due to our cousins for their cosmopolitan selection, and to Mr. HERRINGTON for having in so short a time worked his way into so honourable a position.

HUBERT JEAN VAN HULLE, whose death in his seventy-third year at Ghent on the 13th inst. is announced, had one of those distinct personalities whom it is a pleasure to encounter. He was formerly a professor in the Ghent School of Horticulture, and Inspector of the Municipal Plantations. A polyglot linguist, it was his wont to address the jurors assembled from all parts of Europe at the Quinquennial Exhibitions in at least five different

languages. He was a member of that active band who take such an active part in horticultural matters in the Flemish city, and who were likened to the four-leaved Shamrock. The members of this league were MM. RODIGAS, PYNARET, BURVENICH, and VAN HULLE. Well informed, courteous, and energetic, we sympathise with our Belgian friends on the magnitude of their loss.

THE MARQUIS OF BREADALBANE, in response to an invitation of the Council of the Royal Botanic Society, has signified his willingness to join the Council, in place of the Marquis of BUTZ, resigned.

MR. F. MOORE.—Our sub-editor has been the recipient of numerous letters of condolence and sympathy from contributors to this journal on the occasion of the death of his wife; and, being unable from their numbers to thank them individually, he takes this opportunity of conveying to them his gratitude for their kind feelings expressed towards him in his trouble.

THE MARQUIS OF LOTHIAN.—The death of this nobleman is announced. To horticulturists he will be known as the possessor of Newbattle, with its noble Beech-tree. His collection of Masdevallias formed the basis of Miss WOOLWARD's excellent illustrated monograph of that genus.

EARL MANVERS died on the 16th inst. at Thoresby Park, Nottinghamshire. He was in his seventy-fifth year.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Fruit and Floral Committees of Royal Horticultural Society will take place on Tuesday, January 23, in the Drill Hall, James Street, Westminster, at 1 to 4 P.M. A lecture on "The Neglect of Flowering Shrubs in our Gardens," will be given at 3 o'clock by Mr. GEO. BUNYARD, V.M.H.

ROYAL BOTANIC SOCIETY.—The Brazilian Minister has presented to the Royal Botanic Society two copies of the *Album do Parai em 1899, na Administração do Governo de sua Excia. o Senr. Dr. José Paes de Carvalho*, containing a large number of reproductions of beautiful photographs with explanatory letterpress.

NATURE'S BIRTHDAY.—January 15, being the fifteenth day of Shebat, is, according to our calendar, the new year for trees. Of the four new-years days ordered by the Talmudic authorities none is more apposite than that which recognises that the longest winter nights are over, that the sun renews its warmth to earth; now the forests throw off the lethargy of the winter's sleep, and the sap commences to rise in the trees. *Jewish World*.

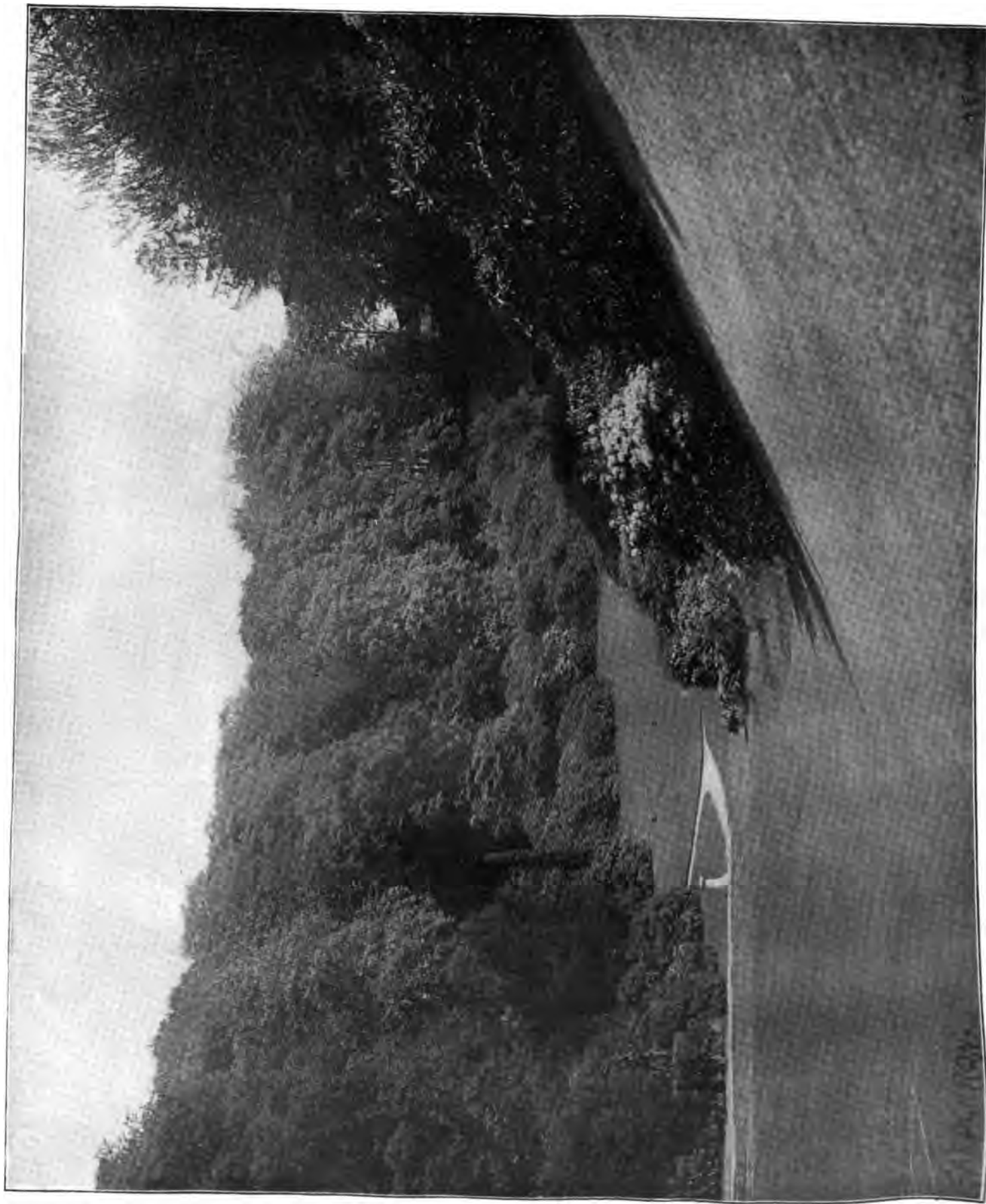
REMEDY FOR GOOSEBERRY MILDEW.—In *Bulletin* No. 133, from the New York Agricultural Experiment Station, potassium sulphide, 1 oz. to 2 or 3 gallons of water was recommended as the best remedy. According to a recently-published report, the results of three years show that it is still the best fungicide the Station has thoroughly tested. Spraying should be begun very early, just as the buds are breaking, and be continued at intervals of about ten days. Further testing will be necessary to determine the relative merits of soda, Bordeaux Mixture, and the copper carbonate solution, in comparison with potassium sulphide solutions for checking Gooseberry-mildew.

SOME FRUIT CROPS OF 1899 IN CALIFORNIA.—We have been informed that this Garden of America has produced 5,250,000 lb. of Figs last year, against 4,780,000 lb. in the preceding year. The "pack" of dried Peaches on the coast is placed at 28,300,000 lb., against 10,960,000 in 1898. The Apricot crop of last year was 7,000,000 lb. compared with 8,240,000 lb. in 1898.

EXPERIMENTS ON MANURING.—From a paper on the "Arrangement of Experimental Plots in Gardens," issued by the South-Eastern Agricul-



THE MANSION AT DEEPDENE, NEAR DORKING THE SEAT OF LILY DUCHESS OF MARLBOROUGH.



VIEW IN THE GROUNDS, DEEPDENE, NEAR DORKING, THE SEAT OF LILY DUCHESS OF MARLBOROUGH.

tural College, Wye, the following are mentioned as being the requisite amounts of manure and the right proportions of their constituent parts: "The quantities required are 2 oz. per square yard of nitrate of soda, sulphate of ammonia, and kainit; 4 oz. per square yard of basic slag or superphosphate; and 1 lb. per square yard of lime." Of course, many other manures will supply nitrogen and phosphoric acid, but the above are the most convenient.

A NEW BEGONIA.—The *Gartenflora* inaugurates the new decade (it calls it the new century) by the description and an illustration of a new fibrous-rooted Begonia from German East Africa. The leaves are obliquely ovate-lanceolate, with two sharply-pointed, widely-spreading lobes at the base. The flowers are small and pink. It may be useful for hybridising purposes. It was discovered by HERR HEDD in West Usambara, and is described by Dr. WARBURG.

RAINFALL AND SUNSHINE OF 1899.—Mr. J. J. WILLIS, of Harpenden, writes:—"The year's rainfall of 1899, according to Sir JOHN LAWES' rain-gauge at Rothamsted, Hertfordshire, which is located 420 feet above sea-level, and is one-thousandth of an acre area in dimension, amounts to 27.14 inches. This is about 1½ in., equal to 152 tons of water on each acre of land, less than the average fall in this neighbourhood extending over a period of forty years. There were seven months which gave an excess of rain compared with the average, and five months recording a deficiency; these latter included March, June, July, August, and September. The total yearly amount of bright sunshine for 1899, according to the Rothamsted measurements, was 1803 hours, whilst at the Royal Observatory, Greenwich, only 1704 hours were recorded out of a possible 4458 hours. The months of January, February, April, November and December were particularly gloomy. The three months which showed less sunshine at Rothamsted than at Greenwich were May, June, and August. In the total twelve months there were 99 hours more of bright sunshine at Rothamsted than at Greenwich.

FRUIT IN ONTARIO.—The 1898 report of the Ontario Bureau of Industries has just seen the light—arriving in London on January 1, 1900. Well, better late than never; but for all that, earlier publication would certainly make a most excellent report of much greater value, or the publication of monthly statements of crop conditions, as in the United States, could not fail to be appreciated in this country. In Ontario, all descriptions of fruit suited for the climate are grown in rich profusion, as testified to by their appearance here, where all are highly appreciated. The fruit-growing area is gradually extending year by year, and all modern means and appliances are in use so as to ensure an even amount of success. The test is to be found here in the prices obtained week by week in, say, London and Glasgow. Spraying, it may be noted, is much in vogue; and its beneficial action is duly noted in sectional reports. The advance of the province in the production of all farm produce, and of a high quality, is very observable.

WILD BIRDS.—The regulations in the County of London prohibit the killing and taking of wild birds from February 1 to August 31, both inclusive; other birds are protected during the whole year. In certain parishes all birds are protected on Sundays throughout the year. The taking or destroying of the eggs of certain birds is also prohibited for a period of five years.

FOWLS IN FRUIT-CULTIVATION.—In the old days of the *Agricultural Gazette*, Mr. Alderman and Sheriff MECHI used to entertain the readers with stories of his agricultural experiences, including the work done by fowls in vegetable-gardens and orchards in clearing-off insect-pests. This sort of work is being done now with approval

in many parts of the world; and from abroad come encouraging reports of the value of chicken-peck. One fruit-grower writes:—"I enclosed half-a-dozen unproductive canker-worm infested Apple-trees in a chicken-yard, and as a result the insects were cleared, and the trees produced good crops of fine fruit." Another wrote:—"The hen has a golden claw; she is a professor of agriculture, too, and teaches clean culture, and lots of it, with high-feeding for a fruit-orchard." *Verb. Sap.*

METROPOLITAN OPEN SPACES.—The year in this respect has opened well, it having been announced that various public parks will be taken in hand by the local public bodies. One is at Ilford, well known for its cemetery; the other at Edmonton, known best, originally, through its connection with that citizen of high renown, yeolept, JOHN GILPIN. As to the first, Ilford, a rapidly-rising suburb, within easy distance of the Liverpool Street Station of the Great Eastern Railway. Here, within the past few years, miles of streets have been constructed, with plenty of garden-ground attached to many of them; and the district council have determined that Ilford must have its "park," and this will, we are told, be constructed at the Green Lanes end of the district, and at the cost of some £10,000. We hope every effort will be made to get value for money. The second open space will be formed out of Prymmes Park, an estate of 53 acres in extent, acquired by the Edmonton District Council, for the purpose of a public park and recreation ground, at a cost of £36,000. The park is well wooded, and contains a lake. It is situated in the heart of a rapidly-increasing neighbourhood, and it is stated that the Middlesex County Council have contributed £6,000 towards the purchase.

ROSE CULTURE IN TURKEY.—We learn from a Constantinople authority that, in order to encourage the cultivation of Roses, and thus to assist in the production of perfumery (attar) throughout the empire, the Minister of Agriculture has distributed 100,000 Rose-trees, of good variety, to agriculturists in seven of the Turkish provinces. In addition to this, loans on easy terms will be made to such producers as require new apparatus and stills, or these will be sold at the lowest possible prices to such as prefer to purchase outright. This assistance does not come too soon.

FLOWERS AND FRAILTY.—A quarter of a century since a contributor to this journal wrote in this place his belief that "beautiful thoughts from angelic minds were born into this world in its lovely flowers." This may or may not be so; but, at any rate, the repetition of the assertion is permissible here in connection with an idea now being carried into activity in the House of Correction, Chicago, by the superintendent, Mr. SLOAN. The most abandoned of women, the class of so-called "unfortunates," are placed under Mr. SLOAN's care, and it has struck that gentleman that no more humanising agent than flower-growing could be used in the reformation of these women. The idea originated in this wise:—A young lady, daughter of a city merchant, had obtained leave to see the female inmates at work in the prison. Her presence was treated as an intrusion by the women, with the exception of one, known as "the Terror," and actuated by a sudden impulse, the visitor took a Rose from her dress, and gave it to the semi-wild inmate. She looked troubled at the gift, but smiled, and said "God bless you." Mr. SLOAN at once seemed to see his way in the matter, and to-day these are doing good moral work in the prison—three greenhouses, 75 by 15 feet, and covering an area of 4000 square feet, duly set out, and tended by these novel practitioners. We think the subject one worthy the attention of our authorities, who might experiment in the first stage with the assistance of outside nurserymen; at any rate, there is the matter for consideration, and it would be pleasant to know that Mr. SLOAN's idea had taken root here.

WEED-KILLER.—Mr. WHITE, a florist, of Worcester, was proceeded against on January 16 in the Queen's Bench Division by the Pharmaceutical Society for selling a weed-killer containing arsenic, he not being a person permitted by law to distribute poisons. It appeared that the florist did not keep the weed-killer in stock, but sent on any orders he might receive to the manufacturers, who executed the order, and gave him a commission. The county court judge of Worcestershire held that the defendant, WHITE, was, within the meaning of the Act, not the seller of the weed-killer. This decision was appealed against by the Pharmaceutical Society, but the court, without hearing counsel for the respondent, dismissed the appeal, and upheld the decision of the county court judge. The Society will have to be more careful in its operations.

THE SALE OF POISONS.—At a meeting recently held in Scotland, Mr. M. CUTHERBERTSON, nurseryman, of Rothesay, asked the LORD ADVOCATE if he would be prepared to support a bill in Parliament making it legal for seedsmen and other agents to sell poisonous preparations such as sheep-dips, insecticides, weed-killers, &c. In reply, the LORD ADVOCATE said that where poisonous substances were dealt with in the way of being dispensed, it was quite right that should only be allowed to be done by qualified persons. But in his view, where they did not need to be dispensed and were supplied by the manufacturer in the final form in which they were to be applied, he did not see that a trade or profession should have a monopoly of selling them, provided proper regulations were made and precautions taken that they would not be supplied or used for any other purpose than those for which they were meant.

OUR ALMANAC.—The demand for this sheet, issued with our first number, has, the publisher informs us, been unprecedented. Although a very large extra number of copies were issued on this occasion, only very few remain. Many fixtures and horticultural arrangements are not made till the spring of the year, and cannot, in consequence, be inserted, but these could be inserted in a second edition should it be required.

LIGUSTRUM OVALIFOLIUM.—Our American cousins are troubled with a great many customs' duties from which we are happily free. Evergreens, for instance, are liable to duty, but deciduous shrubs are not. The customs' authorities seem rather confused as to whether the plant mentioned is an evergreen or not. In this country it keeps some of its leaves till the new ones come; but even a slight frost will cause the detachment of a good many leaves. No doubt local conditions and soil have much to do with the matter. Another source of perplexity to us is, why the species in question is called "Californian" Privet, seeing that it is of Japanese origin.

PUBLICATIONS RECEIVED.—From the South Eastern Agricultural College, Wye, Kent (County Councils of Kent and Surrey), *Hints on the Arrangement of Experimental Plots in Gardens*, A. D. Hall, Principal.—From the New York Agricultural Experiment Station, Geneva, N.Y., the following: *Bulletin*: No. 159, October, 1899, *The Forest Tent Caterpillar*, V. H. Lowe; No. 160, October, 1899, *Report of Analyses of Commercial Fertilizers for the Spring of 1899*, L. L. Van Hyke; No. 161, November, 1899, *Treatment for Gooseberry Mildew*, C. P. Close.—*The Botanical Magazine*, Tokyo, November 20, 1899, contains: *Notulae ad Plantas Asiaticas Orientales* (continued), by J. Matsumura; *Botanische Mittheilungen aus Nikko I.*, by M. Miyoshi; *Plante Japonenses novae vel minus cognitae* (continued), by T. Makino, and various articles in Japanese.—*The American Florist* (Chicago and New York), December 30, 1899.—*The Sydney Mail*, December 2, 1899.—*The Gardener* (Cassell & Co.), January 13, 1900.—*Phanerogamae et Pteridophyta Japonicae Iconibus Illustratae*, or Figures with Brief Descriptions and Remarks of the Flowering Plants and Ferns of Japan (Tokyo), by T. Makino, November 20, 1899. With illustrations of *Trichomanes japonicum*, *T. auriculatum*, *Hymenophyllum polyanthum*, *Vittaria japonica*, and *Diplazium lanceum*.—*Cryptogamae Japonicae Iconibus Illustratae*, or Figures with Brief Descriptions and Remarks of the Mucil, Hepaticae, Lichens, Fungi, and Algae of Japan (Tokyo), by J. Matsumura and M. Miyoshi, October 28, 1899. With illustrations of *Pogonatum otaruense*, *Stictia Miyoshiana*, *Digenes simplex*, and *Issria arachnophila*.

PLANT PORTRAITS.

BEGONIA HEDDEI, Warburg. — *Garten Flora*, t. 1470.

CYPRIPEDIUM × CANHAMII WUNDERM. — C. Canhamii is a cross between C. villosum and C. superbium. The variety figured originated in the garden of Herr Wunderm, Wiener. *Illustrierte Garten-Zeitung*, December.

IRIS ALBO-PURPUREA. — Japan, Kew. *Garden*, December 23.

PRUNUS PERSICA MAGNIFICA, *Garden*, December 30.

ROSE GRAND DUKE ADOLPH OF LUXEMBURG. — *Le Moniteur d'Horticulture*, January, 1900.

THE DEEPDENE.

[SEE SUPPLEMENTARY SHEET.]

OUR supplementary illustrations this week are reproduced from photographs taken during last summer at a delightful residence in the county of Surrey. Those who are familiar with the lanes and meadows, the hills and dales, the pretty villages of this county, will remember with lively pleasure the first time they beheld the surpassing beauty of the district around Dorking, and wandered admiringly over Box Hill, the predominating feature of the local landscape. The land around Dorking is so uneven of surface, so distinct from most other parts of the county, that it has been described as "fairy-made," and if this description be apt of the district generally, it most certainly may be applied with special fitness to the estate of The Deepdene. The site upon which the estate is situated is immediately above the little town, and to the south of the Ranmore heights, whilst Box Hill, and at its foot Burford, Sir Trevor Lawrence's home, lie to the east or north-east.

There appears to have existed a remarkable garden upon the site in Evelyn's days, and whilst living a couple of miles away, at Wotton, he mentioned the place in his *Diary*.

About a century ago Deepdene was purchased by Mr. Thomas Hope, who wrote *Anastatus*, and it is still the property of the Hope family, from whom it was leased several years since by Lily, Duchess of Marlborough, who, with her husband, Lord William Beresford, V.C., now resides there.

To a large extent, the charms of Deepdene are the outcome of its natural characteristics. Its surface is nothing more or less than a number of steep or sloping banks and intervening dells and ravines, and its soil is the well known greensand. What more suitable place than such an one could there be for the extraordinary groups of Rhododendrons and Azaleas that there abound? The answer is given by the shrubs themselves, for they have so taken possession of the place, so covered its slopes, scaled its heights, and filled its lowest levels, that it would be a difficult task indeed to eradicate them, even if such a spirit of vandalism could ever be entertained in regard to such a place. The Rhododendrons seed by thousands, and in some of the less trodden of the many shady, almost solitary paths, the pedestrian can hardly avoid crushing the young plants beneath his foot.

Before visiting the south side of the residence from whence the photographs were taken, let us stay for a moment to admire the view upon the north side, where the lawn slopes from the house, and the many splendid old Cedars (C. Libani), a Tulip-tree, probably 70 feet high; several large evergreen Oaks, five or six good specimens of the Purple Beech, in addition to the ordinary Beech, and a few less noteworthy species make the view an attractive one.

Proceeding to the west side, one sees the good effect of the work Her Grace has effected in the removal of large bushes of Rhododendrons that intruded too near the building. This opening out of the immediate grounds around the house was much needed, and even now the pretty spire of St. Martin's Church is hardly visible, and we think a little more of the same work might be advantageously performed. On this west side, adjoining the house is a small flower-garden, but so small that in comparison with the other features of Deepdene, it is hardly noteworthy; and it may be mentioned here that flower-gardening as generally understood, as practised at Blenheim for instance,

in the exceedingly large one illustrated in the *Gardeners' Chronicle* a fortnight ago, is not practised at Deepdene.

Coming now to the south side, the immediate view is that of a steep, grass-clad bank, crowned by Rhododendrons, and rising from close to the house. This extends most of the way along the front, and terminates as shown in our illustrations of the south front as approached from the south east. The Rhododendrons there depicted being most in view have been planted by the Duchess, and are newer varieties with variously coloured flowers. Further in, and this refers to the plantations and thickets of Rhododendrons, over the entire place, the bulk of the plants are of the species *R. ponticum*. On this same bank, and in various positions, are large Bamboos, Broom, and species of a like nature. To the right of the house the photograph shows a fine Horse-Chestnut tree and a Copper Beech. The effect of the position of the camera, however, has given to the tree a greater advantage in height over the house than it actually possesses.

But to obtain the better view we must walk to the extremity shown in the other illustration, and that is a position occupied by an Egyptian Temple (just visible in the photograph), at a height reached through a slightly ascending narrow valley, the sides of which are high banks, covered with Beech trees, with Rhododendrons in front of them, and thence by a flight of 108 steps. It will simplify matters if we say that the two views were taken by turning the camera round and slightly altering its position. The height above described is known as The Terrace, and some very fine views of considerable distinctness are obtained from thence.

Looking from the temple towards the house is a fine view of the features already described, and right away to Ranmore Common at the top of the heights. We should have mentioned that at the base of the narrow valley leading up to the terrace is a small plateau where there is a sundial and several figures. There were a few flower-beds here until lately, but they have been filled with new Roses that Her Grace admired and purchased whilst on a visit to the United States last year. The terrace is the highest point in the gardens, and is above the roof of the dwelling-house.

Turning completely round, and looking south, the view from the terrace is quite of another character, and very extensive. Below is stretched the flat wealds of Surrey and Sussex. On a very bright day it is said that Brighton may be seen. On the terrace to the left we proceed to view Box Hill from this position, and the new forts thereon, that have recently been built to further protect this little island in the remote possibility of invasion. These walks, all of them flanked with great Rhododendron bushes, wind around and back again to the house; but instead of proceeding by that way, we may take the more interesting one in an exactly opposite direction, and thence back to the house on the west side. Starting from the temple, then, the first interesting feature is an avenue of beautiful Beech trees, that seen now are leafless, but not devoid of charm, their large, sleek-looking limbs being admirable. Further along the terrace is an old rustic summer-house built in a tree, from which the view obtained is even more extensive. Now traversing paths, always between Rhododendrons, we descend like so many terraces, one path below another, the space between a thicket of Rhododendrons, such thickets that offer so good a harbour for foxes that about a month ago, upon a hunt-day, as many as four were killed in the gardens. At length the lowest position is reached on the western side, and it is possible to obtain a good idea of the Rhododendrons above. What a blaze of colour when these bloom! Could anything be more gay?

A bed in the base, very nicely sheltered, is just about to be planted with choice Azaleas, such as Anthony Koester, and varieties of comparative merit, that Her Grace has seen displayed at the Drill Hall and Temple shows. We need not further describe the

pleasure-grounds, except to add that at one position to the east of the house a fine specimen of *Abies Douglasii* may be seen, and good trees of *Araucaria imbricata*, *Cryptomeria japonica*, *Sequoia Sempervirens*, *Pinus insignis*, *P. Cembra*, *Abies Pinsapo*, and other Conifers, some of which have reached considerable dimensions, adorn them.

ORCHID AND OTHER HOUSES.

Quite in conformity with the rest of the estate, the kitchen-garden, a walled-in enclosure of some extent, affords hardly a rod of level land. In a garden of slope everything must be grown upon a slope, and it is thus at Deepdene. But good crops are obtained all the same, and especially when the seasons are not abnormally dry ones. The Duchess of Marlborough, ever since she came to England, has been a very liberal patron of horticulture. When at Blenheim she acquired a rich and most valuable collection of Orchids in a short time, and when, upon her husband's death, a large number of these were sold, sufficient were retained to make a good collection in her future residence, which has proved to be Deepdene. But after acquiring the place, it was necessary to build houses suitable for their cultivation before removing the Orchids from Blenheim, and six excellent span-roofed structures were built by Mr. Duncan Tucker, of Tottenham, for this purpose, and for the growth of other plants. They are about 60 feet long, and there is plenty of width and height. They have been built to last a life-time; the front stages are 1½-inch slates, and everything in their construction is of the best. Most convenient means of ventilation has been provided, and in each of the houses a tank runs the length of the centre stage for the storage of rain-water. When after two years storage at Blenheim the Orchids were removed to Deepdene, Mr. Whillans' foreman, Mr. F. Chamberlain, took over the charge of the gardens at Deepdene, and he may be credited in respect to the able manner in which they are now maintained. It is not necessary to write at length of the Orchids, for the present is not by any means the time when they show to advantage. But any reader who may wish to obtain particulars of the collection we would refer to our issue for July 22 of last year, when an able correspondent gave some very interesting notes upon the species that had lately bloomed.

One of the new houses at the present time is filled with Richardias (Arums), just coming to flower, and a large quantity of Cyclamens. Mr. Chamberlain described the strain as that of Messrs. Sutton & Sons. The distinctly-coloured Salmon Queen; the deep Vulcan, and of white, the Butterfly and Giant White were grand, and the cultivation given them most successful.

In another house Souvenir de Malmaison Carnations were its occupants; and in another one winter-flowering Carnations. Mr. Chamberlain is a very successful grower of these plants. He says that Winter Cheer has deteriorated. It is difficult to obtain good blooms from it; the best of the same colour is now John Peter Rufus, but as we saw it the calyx is less satisfactory, though the blooms are larger. In the Palm-house are some beautiful specimens, but if one be mentioned to the exclusion of the others, it should be that of *Kentia Canterburyana*. We have never admired a more perfect plant.

Next we noticed some Roses in pots in a forcing-house. The plants will soon be in bloom; buds are already formed. The new variety, Sunrise, was among them, and a variety that for the purpose Mr. Chamberlain thinks unexcelled, is Souvenir de Wotton; it is so strong a grower, and produces its blooms upon really strong, fine shoots.

That the Orchids are grown well is proved by the splendid specimen illustrated in a supplement to this journal, June, 24, 1899.

We were shown two excellent plants of the variety C. Mendeli Duke of Marlborough, one of the finest of this genus. Her Grace, the Duchess, has been known to observe that she would not accept £1000 for either specimen. The old houses

that have been retained have been entirely renovated; they include vineries, Peach-houses, and such like structures. An excellent stokehole has been made and fitted with powerful tubular boilers, and in all respects the garden is well appointed and liberally maintained.

Mr. Chamberlain is exceedingly proud to show a beautiful gold watch with appreciative words engraved thereon. Three weeks ago [it was a

flower on a plant of *Canna Parthenope*. On examination of the spike it was found to have four flowers, the lowest being typical, the next parti-coloured, the third and fourth typical. The second flower was then fully examined: half of the ovary was found to be green, the remainder chocolate, a part of the stem attaching the ovary to the spike had a broad green streak which extended up the spike to the base of the ovary of the top, or fourth

on a clump of *C. Parthenope*, in the Society's gardens on October 8, three flowers being half Austria and half of the type, two were pure Austria, while one was a true Parthenope. The supposition was that Austria and Parthenope were produced from the same cross, and had their origin probably from seeds yielded by one pod. Another suggestion was that Parthenope was the result of a cross between Austria and some dark flowered

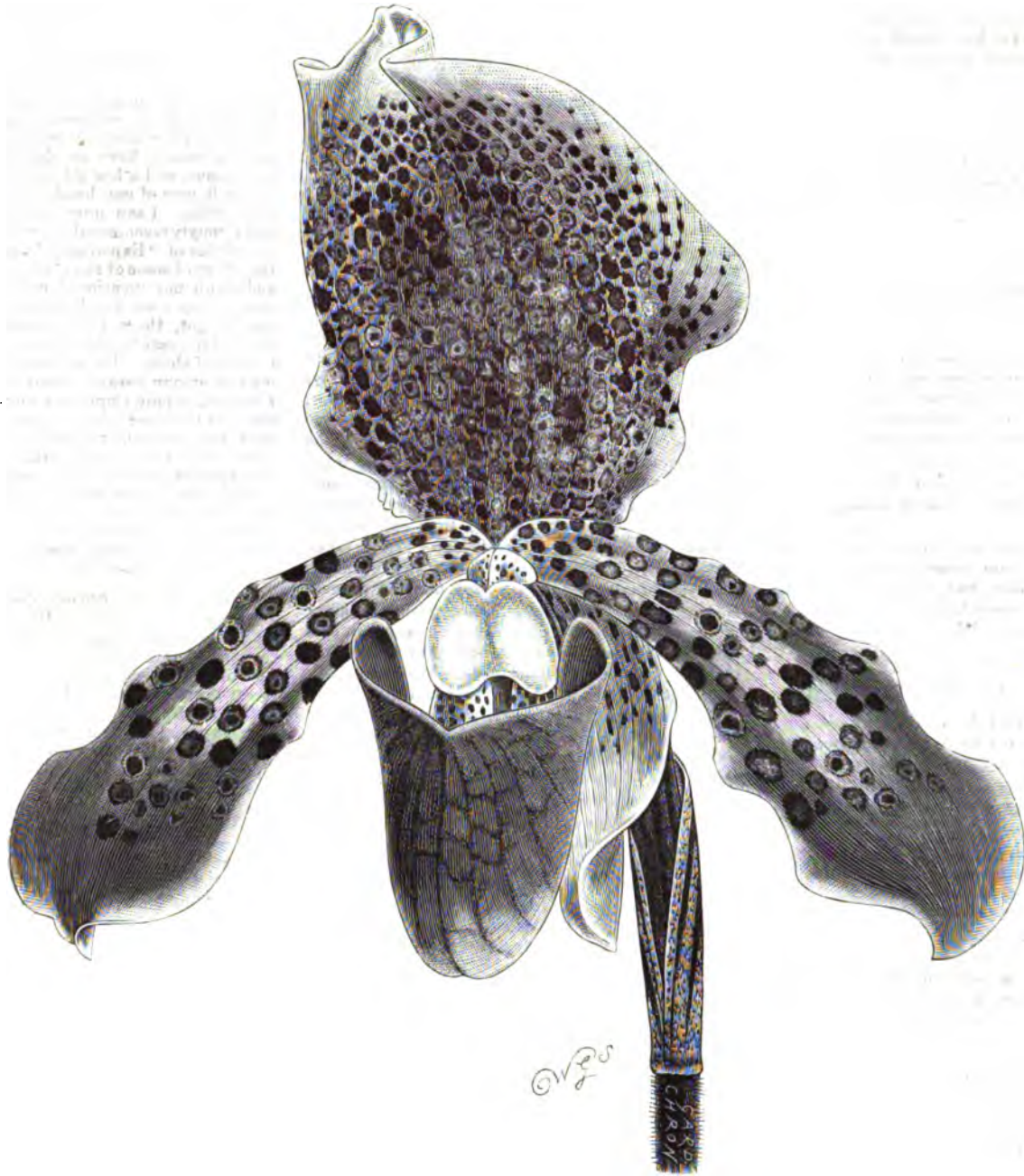


FIG. 13.—CYPRIPEDIUM SIR REDVERS BULLER. (SEE P. 35)

Christmas present from the Duchess and his Lordship, as an accompanying letter said, as a mark of appreciation of his loyalty in service. The circumstance is interesting as showing the kindly feeling that exists between the Duchess and her gardener, and pleasing, because it is a case where merit has met with encouraging recognition.

INDIA.

ANOTHER PARTI-COLOURED CANNA.—On the morning of August 16, Mr. F. G. Clarke discovered in his garden, at Ballygunge, a parti-coloured

flower, there terminating in a fine line. The ovary was cut open, and the interior was found to be coloured similar to the exterior; the petals arising from the green side were found to be yellowish in colour. The flower contained one perfectly yellow petal corresponding in every detail to that produced by *C. Phoebe*, another petal was found to be half Parthenope and half Phoebe; a third, the one commonly called the lip, had one-third painted yellow, and the rest was of the typical colour, the remaining two petals were true Parthenope. In the *Proceedings and Journal*, October-December, 1898, is to be found a report of a sport produced

variety, and had "sported" [reverted to] one of its parents. *Proceedings of the Agri-Horticultural Society of India.*

LAW NOTES.

SEEDS ALLEGED NOT TRUE TO NAME.

HOWCROFT AND ANOTHER v. PERKINS.—This case came on for hearing in the Queen's Bench Division of the High Court on January 13, before Mr. Justice Channell, and was an action brought

by the plaintiffs, seed merchants, against Mr. George Perkins, a nurseryman and market gardener, of Leicester, to recover the balance of an account for goods supplied. The defendant admitted the claim, but set up a counter-claim, which raised a point of considerable interest to seed-merchants, nurserymen, and others.

It appeared that in October, 1898, the plaintiffs' traveller called upon the defendant, and obtained an order for certain quantities of seed, including 1 lb. of Clayworth Prize Celery-seed, the price of which was 3s. The defendant said that instead of supplying him with what he ordered the plaintiffs sent him Turnip-rooted Celery-seed, with the result that the plants which he reared, numbering 14,000, only realised 6d. per dozen instead of 1s. 6d. The defendants contended that the plaintiffs' traveller warranted that he should have what he had ordered, though he admitted that the invoice sent by the plaintiffs after the goods had been delivered contained a clause to the effect that the vendors gave no warranty, express or implied, as to description, quality, productiveness, or any other matter to any goods sent out, that they would not be in any way responsible for the crop, and that if a purchaser did not accept the goods on these terms they were to return them. The plaintiffs denied that there was any warranty, and contended that the defendant was bound by the terms of the invoice, which were common in the trade. They further said that unless they were protected by these terms they would have to go in for an extensive system of insurance. In this case the plaintiff had purchased seed of the value of 3s., and alleged that he had sustained damage to the extent of about £60.

Mr. Justice Channell gave judgment for the plaintiffs, holding that the terms contained in the invoice were reasonable, and binding upon the defendant. Judgment accordingly for the plaintiffs, on the claim and counter-claim, with costs.

CYCLAMENS AT LEES, COLD-STREAM.

WHEN on a visit to the Border district about the end of last November, I called at Lees, and found Mr. Cameron busy amongst his Orchids, which seems to form a great feature of the place; and after having inspected the Calanthes, I passed through the fruit-houses, when, judging by what I saw, the crop must have been rather above the average. Chrysanthemums had been good, but at that late date the best of the blooms had been removed for house decoration.

A long, low span-roof house, with a stage running on either side, and a path up the centre, was entered. It was filled with plants in pots of *Cyclamen latifolium*, intermixed with nice plants of *Eulalia japonica variegata*, forming a very remarkable sight. The Cyclamens were growing in pots that varied in size from 4 inches to 8 inches in diameter, and were adorned with from ten to a dozen fully-expanded flowers on the smaller plants, to more than fifteen on the larger ones. The fine dark green foliage with flowers, ranges from pure white to dark purple, harmonising well with the dot-plants of *Eulalia*. Being greatly taken with this unique display at that dull time of the year, I could not refrain from asking Mr. Cameron a number of questions regarding his method of cultivation, the answers to which I give for the benefit of the readers of the *Gardeners' Chronicle*.

In the first place, he said that they must have a display of flowers during the winter months, and after having experimented with a number of different plants, he had come to the conclusion that for a winter display in a green-house, for cut flowers, and as a decorative plant for the dwelling, nothing can excel the Cyclamen. There may be some other plant that will equal it, but cannot be better. He therefore sowed seed every year about the end of July or the first week in August, plunging the seed in the propagating-case, and in due time the seedlings appear. These are kept as

near the glass as possible, and by the month of December they are ready for potting into thumbs. The potting material consists of good loam, a small quantity of leaf-mould, and dried cow-dung well broken up, with enough sand mixed in the whole to give porosity. They are then stood on a shelf near the glass, great care being taken in applying water, for they should not get dry at any time.

By the second week in April they are ready for repotting into 4-inch pots, the same mixture of soil, &c., being employed as before, with a small quantity of bone-meal; the plants being replaced on the shelves, and kept well shaded. By the end of the month of May the strongest plants are fit for being shifted into 6-inch pots, but the weaker ones are left in the 4-inch pots. All are placed on coal-ashes in cold frames about the end of the month of June, and shaded during sunshine and plenty of air afforded. In October the plants are taken indoors, the forwardest being situated and placed in the house above described, which is kept of an intermediate character. In a very short time the flowers appear. The more backward plants are placed in a cool house, and take the place of the earlier ones when they have done flowering, thus prolonging the season of flowering from October to May. When in flower, those which are considered worth growing again are labelled and planted out in a cold frame in May, all of the old soil being shaken from the roots; they are planted in a mixture of much the same kind as that in which they were potted. The frame is kept close till growth is renewed, when the sashes are gradually taken off, and the plants exposed to the sun during the summer months. They are potted up about the end of the month of September, great care being taken of the young roots. They are now worked along with the younger plants. I have omitted to mention that the young plants are grown in stove temperature until the time they are planted in cold frames, in June. I had the honour of being taken through the public rooms of Lees House by Lady Marjoribanks, and there saw for myself how freely these plants and cut-flowers were used for room decoration; and how well they harmonised with the antique furniture, and the paintings on the walls. It is surprising to how large an extent Cyclamens are now cultivated in private places, but it is even more surprising that few can grow these plants really well. If the unsuccessful cultivators who may chance to read these notes light upon any hints on practice likely to be of benefit, my purpose in penning them will have been secured. A. L. M.

THE APIARY.

Packing Honey.—There are several methods of packing sections of honey. Crates with springs are useful for quantities of three to four dozen sections, but if more are sent there is the risk of a spring breaking. The best plan is to get a cube sugar-box, No. 1, Tate's, and pad the bottom with shavings or hay, extending the packing-material up the two sides and ends for about 6 inches; this will prevent any injury when placed down quickly. It is to this sudden impact that is due the mischief that occurs to the capping at the top of the sections. Have these crates made each one to hold twenty-four sections, and to fit into the box one above the other; this will allow of a very thin board being placed lengthways to wedge the sections closely together. Care must be taken to place at least three layings between each crate to prevent any honey running from one crate to another if any breakage should occur. Two handles made of rope complete a good honey-case. Write on the lid "Honey, with care," and number it on the top, also on the front, so that you can at any time discover it at a glance. This will enable you to see which cases are missing. A little paint will improve the box in appearance, but they are so roughly handled that it is a waste of money.

Feeding.—Any warm day a cake of candy or a broken section can be placed on the bars, but the same must be done as quietly as possible, so that the bees may not be disturbed. *Expert.*



HOME CORRESPONDENCE.

SEASIDE PLANTING OF TREES AND SHRUBS.—I am much interested in the articles by "Experience" on this subject, especially as he is bringing to notice many comparatively unknown shrubs which very few care to introduce into their gardens, as they seem to have an idea that anything beside *Euonymus*, and a few others which may be counted on the fingers of one hand, would prove failures by the seaside. I can prove this to be utterly false, and strongly recommend intending planters to follow the advice of "Experience," and try for themselves the effect of some of the kinds suggested. There is one shrub not mentioned so far in your list, and that is *Cupressus Lambertiana*. If the true variety can be got, there is no handsomer tall-growing shrub for seaside planting, as specimens in this town will show. There seems a great difference of opinion among growers about this variety. Many, I believe, supply *Cupressus macrocarpa* for it, and say it is the same; but if the true variety be once seen, no one can be misled, for *C. Lambertiana* has a distinctly horizontal growth, quite different from the upright growth of *C. macrocarpa*. They are both grown in quantity by a nurseryman near here, and I am told that *C. Lambertiana* is rather difficult to raise, and grafting has to be resorted to. *C. macrocarpa* can be very easily raised from seeds. A. Cameron, Revoca, Eastbourne.

COE'S GOLDEN DROP.—On p. 12, Mr. Temple enquires if Coe's Golden Drop and other sorts of Plums succeed in this neighbourhood. In our collection of over fifty sorts (including most of the new ones), Coe's is still one of the very best. We never tried it as a standard, but upon walls, with both east and western aspects, it is one of the most reliable croppers. The flavour of fruits from the west walls is much the best, owing no doubt to the extra heat of the afternoon sun. As to the keeping qualities of this Plum, it certainly does hang upon the trees much longer than most sorts, but I think it should be said that the fruits may be preserved fresh for six weeks after gathering rather than six months. Other good late Plums that do well on the walls here are Grand Duke, Monarch, Belle de Septembre, and one or two seedlings, which generally keep up a supply into November. Only the freer-bearing sorts should be planted as standards, although in favourable seasons they all crop freely enough when they have been properly attended to as regards root-lifting, watering, &c. There is nothing to equal the Victoria as a sure cropper but Early Prolific, Czar, Mitchellson's Monarch, Gisborne, and Bradley's King Damson, all do well as standards, and never fail to ripen their fruit. C. Webster, Gordon Castle Gardens, N.B.

SEEDS OF CONIFERS.—In reply to the enquiry made in last issue of the *Gardeners' Chronicle*, by Mr. S. J. Westlake, I may inform him that should he fail to obtain the quantities of Conifer-seeds in this country, he may procure them from Johannes Rofu, a nurseryman at Skoofrökontorset, near Copenhagen. *Globe Trotter.*

UP-TO-DATE POTATO.—Almost everyone is interested in the Potato, whether our interest consists in looking at it from a dietetic or horticultural point of view. I have no desire to intervene in the discussion between Mr. Harrison Weir and Mr. D. T. Fish in their respective support of yellow and white-fleshed Potatoes. I should like to remark, however, that Up-to-Date is not absolutely perfect as a disease-resister. I live in a district where this and other Potatoes are very largely grown, and this year disease exists rather largely in Up-to-Date in several farms and gardens. It is also a bad keeper in pits if damp should enter. Its great cropping qualities lead it to be largely grown; but some farmers who have discarded Maincrop for it, appear to regret having done so this season. The

last issue of the *Gardeners' Chronicle* (January 13) shows that the average price of Dunbar Maincrop is 10s. above that of Up-to-Dates from the same district. The inference is obvious. *S. Arnott, Carsethorm, Dumfries, N.B.*

THE NEWTON WONDER APPLE.—In the issue of January 13 there is a letter from Mr. T. Turton, gardener, Sherborne, Dorset, on the merits of the Newton Wonder Apple as a keeper. I should like to ask Mr. Turton if his fruit was stored in a high temperature, or frosted before being stored, it being an unusual thing for the fruit to get spotted. I have kept the fruit till September, and should be much obliged to Mr. Turton for particulars as to his mode of storing, through the medium of the *Gardeners' Chronicle*. This correspondence may induce others to afford information in regard to storing long-keeping fruit. I may say that I was the raiser of Newton Wonder Apple, and I am quite convinced after trials against other so-called long keepers that it is the best in the country, and I know now at the present time of families that will have no other in for dessert while they can get this variety. And to show you it is a keeper, I will send you the name and address of one buyer who never touches his fruit till March, and he would to-day pay a good sum down to ensure having next season's crop, as his customers are so eager to get hold of such a splendid all-round Apple as this has proved to be, as anyone who has had it once always asks for it again, and will have no other, and it commands a good price in this neighbourhood. *W. Taylor, King's Newton, near Derby.*

PLUMOSE AND BARREN FERNS.—With reference to Mr. A. Hemaley's remarks on the barrenness of plumose forms of Ferns (January 13, p. 28), he is perfectly correct in saying that "there is no accounting for the vagaries and eccentricities of Ferns," and amongst such vagaries there is always the possibility of a truly plumose form reverting so far as to bear spores. All the plumose forms are necessarily sports from fertile forms; and hence, however constant they may be, must inherit the spore-bearing capacity. Among our British plumes, most, even of the more foliaceous, are more or less fertile; but one of the *Athyria*—*A. f.-f. p. Barnesii*—is reputed to be perfectly barren. I have examined many robust plants, and with one exception, invariably failed to find a trace of spores; the exception occurred in my own collection. I divided a plant into several crowns, and the following season one of the crowns produced a complete series of extremely fertile fronds, the sori being so dense as to cover the under-surfaces with a thick brown confluent mass. As all the divisions were planted in the same frame, I am utterly unable to account for this sterility; and since the following year I could not find the plants, I was forced to the belief that the reversion was only temporary. *P. v. cambricum* on the Welsh *Poly-pody* is, I believe, invariably barren in all the true forms found. A plant at Kew so labelled was recently pointed out to me as fertile, but it was *P. v. pulcherrimum*, a much-divided and superficially similar form, but which is not plumose, lacking the thin-papery texture, a case which I mention merely as showing how mistakes may arise, on the *per contra* side of the argument. The true *crispum* Hart's-tongues are also apparently constantly barren, but there are numerous well-frilled and even papery types which bear spores in irregularly distributed masses, even the finely fimbriated ones of ultra-plumose looking character doing the same thing. Some of the finest and densest plumose *Polyatichums* are reputedly barren, but grown hard in the open they are sparsely fertile, and even under glass I have forced and raised plants from quite isolated sporangia, only detectable with a strong lens. *P. ang. pl. Patzii*, a wild find, and certainly true plumose, is invariably barren with me and most growers; but a plant at Carnforth which I saw some years ago, had here and there a sorus, and showed spores under the microscope, though I failed to obtain prothalli from them. Other reputedly barren Ferns, such as *Asp. t. incisum* and *P. sculeatum pulcherrimum*, are also reported on good authority to have swerved now and again from their usually strict adherence to barrenness. Hence, I am strongly inclined to think that even *As. Farleyense* might do the same, especially if plants of it were subjected to varied conditions which would tend to harden or toughen its delicate fronds, the delicacy of which, and consequent increased beauty, is usually the sole aim of

the grower. *Ad. c. v. imbricatum* does not rank with the ordinary barren plumose, since it produces bulbils on the sites of the sori, as does also *Ad. c. v. daphnites*, as figured by me in one of your issues a year or two ago. In most of the plumose *Athyria*, however, the same thing occurs, but sporangia, as a rule, are associated with the bulbils, and contain perfect spores; further investigation may consequently show *Ad. c. v. imbricatum* to do the same. Naturally, where the fertility only gets the length of isolated sporangia, extremely careful inspection is needed to detect it, and possibly if such care were devoted to pinnules of *Ad. Farleyense* which presented any slight indication, the search might now and then be successful. *C. T. Druery, F.L.S., V.M.H.*

SEEDLING ADIANTUM FARLEYENSE.—I have read with much interest the correspondence of Mr. Sandford and Mr. Hemaley on this subject. I am surprised that the former should accept as proof positive of the ability of *A. Farleyense* to produce fertile fronds the solitary supposed instance he refers to. It is a well-known fact that *A. Farleyense* can be best propagated from minute portions of the rhizome, and young plants thus produced from old plants, denuded of their fronds, present in a remarkable degree the appearance of Ferns raised from spores. Whilst at the Barton Nursery of Mr. W. B. Smale, Torquay, I surprised more than one old hand by inviting them to come and see a batch of seedling *A. Farleyense*. On one occasion I was well-nigh deceived myself by the appearance of a young plant of the above, having all the appearance of a seedling, growing in a potful of *Begonia Gloire de Lorraine* cuttings, in a house far removed from the fernery. On recollecting, however, that the soil in which the cuttings were inserted was the refuse from a panful of *A. Farleyense* propagated from portions of the rhizome, I was quite satisfied that this supposed seedling did not owe its origin to a genuine fertile frond. *Ed. J. Love, Topsham Road, Exeter.*

— I have never attempted to raise any plants from spores of this variety. Mr. Hemaley says that it is Mr. Masters' variety, of which I have no doubt, as the frond figured in the *Gardeners' Chronicle* of January 21, 1888, is a true specimen of the variety that I have. I cannot understand your not being able to find any spores, as the edge of the pinna is turned over to the under-side; and on turning this back, I have no trouble in finding spores in quantity. I may be at Worthing this week, when I will take some specimens direct to Mr. Hemaley, which no doubt he will report to you. *E. Sandford, Bognor.*

DISSEVERED CROPS.—The planting season being now on, it may be profitable to consider what can be done towards arresting the spread of plant diseases and pests by a judicious practice of splitting up a given crop into two or three sections, and planting each section as far apart from the others as the limits of the garden will allow. Crops all the world over have suffered all the more severely from the scourges that affect them because large areas, in which plant touches plant, have been open to their attacks by close contagion, without a single barrier formed by a different kind of crop, or break of any kind. It is not possible to arrange crops, or portions of crops, within the circumscribed limits of a garden so that every scourge would be confined to the small radius of the spot from whence they originated; but the gardener, who seeks to extend the season of every crop by sowing seeds at different periods, and by planting perennial crops in warmer and cooler parts of the garden, has every opportunity of splitting up given crops for the purpose under notice, without interfering in any way with the extension of their seasons. The Asparagus-beetle, the Cabbage-gall weevil, and "clubroot" caused by alime fungus; the Strawberry "leaf-spot," thrips, and various, but not all, mildews, are a few of the instances that have come under my notice of scourges which spread rapidly from plant to plant, and which have been checked and confined to the places where they originated, although similar host plants have been growing in other parts of the garden free from any of these troubles. I would suggest that in every case where rules of rotation, water-supply, and convenience of cultivation admit, no two crops of the same kind be grown side by side; that permanent crops should be so split up as to lessen the risk of total loss, in cases where the plants are particularly

liable to diseases and pests; and that bush fruits which usually occupy an area to themselves, be so arranged that the one sort would intercept the spread of any disease or pest of the other. I view with apprehension the prevailing practice of erecting large ranges of glass-houses for Tomato-culture by market growers, without any division that would separate one house from another in cases of an outbreak of one or more of the infectious diseases to which the Tomato has shown peculiar susceptibilities. Such houses may be perfect from a cultural point of view, but they provide no safeguard against contagion—an important point to consider when a large area is covered. *Geo. B. Mallett.* [We have often called attention to this risk. *Ed.*]

A WEIGHTY TESTIMONY TO THE MERITS OF GOLDEN DROP PLUM.—Were it not absolutely true that good wine needs no bush, the columns of the *Gardeners' Chronicle* would have been crowded with such as that borne by my old and able friend Mr. Temple, of Carron, N.B., as to the bearing and quality of this fine Plum. But Mr. Temple, whom his friends old and new are always glad to read and listen to, represents seven counties and two countries, and possesses a rich, mellow, and successful experience, testifies to this Plum doing exceptionally well in various places and aspects, especially on north walls. It speaks volumes as to the hardiness and fertility of this fine Plum that Mr. Temple should match the Golden Drop without against the Victoria in those qualities in which the latter especially excels. No doubt surface, rooting is a great element in intensified fertility in this and other Plums, and in most of our fruits. Supplies of Golden Drops in private gardens through the month of November would prove a boon for late shooting parties, and probably, in the case of Mr. Temple and many others, they prove so luscious and popular, that few or none were left to finish the old or furnish fruits for several months in the new year. Still, I can assure all concerned that by following the simple instructions given, and growing a fine lot to start with, most of your readers may enjoy this finest of all Plums from nine to twelve months. *D. T. F.*

FRUITING OF EUONYMUS.—In answer to your correspondent, J. E. Tonkin, as to the abundance of berries on the *Euonymus*, there is no doubt that it was owing to the last extraordinary hot summer. There are in this district great quantities of berries, especially on plants that are growing against walls. There were in 1893 and 1896 a good many berries, but never to the same extent as at the present time. The past summer was most favourable to the ripening of the fruits of *Ampelopsis Veitchii*, an occurrence which I have only noticed once before within the last ten years. I have enclosed a few berries which you will see have perfect seeds in them. *E. Sandford, Bognor.*

— Probably the almost tropical heat of the last two summers has had much to do with the fruiting of the *Euonymus* in Mr. Tonkin's garden. In a neighbouring garden, a variegated form of *E. japonicus* trained against a wall, produced last season for the first time panicles of fruit; the bright scarlet arils of the seeds contrasted finely with the variegated foliage. Our native *Euonymus europaeus* has been more heavily laden than usual with fruit. This is a much-neglected species, it being a valuable subject for planting in and around woods, for it will thrive and fruit freely in a shady position and in poor soil. Its height in a wild state is usually about 6 feet, but given generous treatment it will soon attain a height of from 15 to 20 feet. The Spindle, or Pincushion-tree, as it is sometimes called, is of easy propagation; this may be effected by layering, cuttings, or seeds. A Pomegranate planted in these gardens in 1831 has for many years flowered more or less freely, according to the season; last year it produced its first and only fruit, which it perfected, and was of very fair flavour. In July this tree flowered in great profusion, having four flowers at the extremities of the strongest shoots. In south Cornwall the out-of-door *Camellia* bushes were last autumn laden with fruit. The sunny side of the fruit being of a reddish colour rendered them very attractive. *A. C. Bartlett, Pencarrow, Bodmin.*

— The paragraph dealing with this matter in last week's issue of the *Gardeners' Chronicle* was of interest to me, as a few years ago

I visited a small seaport about $3\frac{1}{2}$ miles from Redruth, on the north coast of Cornwall, where I was surprised to see the fruiting *Euonymus* Mr. Tonkin alludes to. When I returned to Redruth I looked all about, but I could not find a bush bearing a fruit. Every year since, I have made it my business to go to the seaside place named to ascertain if the fruiting was an annual occurrence, and to my surprise I found fruits in abundance, whilst inland the species is entirely fruitless. The *Euonymus* grows vigorously on the Cornish coast in company with *Privet*. After a gale the latter will be found deprived of all its foliage, whilst the former seems to be not any the worse for the storm. Evidently these plants have a liking for the sea coast, and the mild climate enables their flowers to expand and become fertilised freely. *An Old Kewite, Redruth.*

ODONTOGLOSSUM CRISPUM MOORTEBEEKI-ENSE.—In reply to your favour re *Odontoglossum*, *Gardeners' Chronicle*, Dec. 9, 1899, p. 431, fig. 136, there has been a mistake. The name should be *O. Lindenii*; and to make and set matters right I should like a note inserted in the *Gardeners' Chronicle* correcting the name. Please let me know that this will be done, and oblige, A. Warburton, *Vine House, Haslingden, Jan. 11, 1900.*

THE HATFIELD CURE FOR SPIDER.—I saw this method of sulphur fumigating some years ago in the very extensive and most successful Rose-forcing establishment of Mr. John Dunlop, Toronto. I think it was in the month of March when I walked through a house with him some 300 or 400 feet long, which was being fumed at the time. The vaporised sulphur was only just mildly unpleasant, and to the best of my recollection there were not more than three lamps at work. These being shifted in sections of perhaps about 10 yards apart along the pathway of the house when sufficient vapour had been emitted at any one point. The Roses in this house were in all stages of growth, from those with the tenderest leaves and shoots to mature wood with flowers thereon. Mr. Dunlop used it as a preventative and exterminator of mildew, and considered it the most effective remedy for this pest. *A. Ingram.*

I have read with much interest the correspondence through these columns on the cures for red-spider. I think that too much cannot be said or written on the subject, as it is the worst enemy the gardener has to deal with; and it is to be hoped that anyone who has a cure will make it known. What are the effects of burning sulphur (not merely evaporating) in theinery when the Vines are at rest? *T. A.* [This is not safe, the sulphur injuring the buds. *Ed.*]

SHRUBS FAVOURED BY BIRDS WHEN NESTING.—In reply to Mr. Lynch's enquiry respecting favourite shrubs and climbers for birds to build in, I beg to submit the following for his perusal, namely:—*Laurustinus*, *Azara integrifolia* and *A. microphylla*, *Eleagnus reflexus*, and other species; *Smilax tamnoides*, *Berberis stenophylla* and *B. Darwinii*, *Laurus nobilis*, *Myrsine africana*, *Lonicera gigantea*, *L. japonica aurea*, *Crataegus pyracantha*, *C. p. Lelandi*, *Cotoneaster microphylla*, *Myrtus communis*, *M. lineata*, *Ceanothus dentatus*, *C. Gloire de Versailles*, *Physianthus albens*, *Camellia japonica*, and *Euonymus japonicus aurea*. The above-mentioned are all adapted for nesting, and at Abbotsbury, where the birds are fostered always, and fed in the winter, they rest in them all very freely, especially if the bushes and climbers are allowed to grow naturally, and not trained in too flat and thin. I admit that most of the species mentioned have at this place the advantage of age, and they are all quite hardy, having withstood 20° of frost, excepting the *Physianthus*, and I could thoroughly recommend the others, especially for planting against a warm wall. *Joseph Benbow, Abbotsbury.*

LATE PEARS.—It was exceedingly kind on Mr. Woodward's part to bring a few Pears and a dish of hail-injured Apples all the way from Barham Court on the 9th inst., and thus to save the Fruit Committee at the Drill Hall from an absolutely blank meeting. The remarkable thing about the Apples, *Reinette du Canada*, was that though so injured and cut into by hail-stones that the fissures in them were an inch long and half-an-inch deep, yet no decay had followed. Possibly something was due to the well-known dry flesh of the variety. In any case, the exhibit was very interesting. But

the late Pears shown, *Passé Crassane* and *Doyenné de Alençon*, both quite old varieties, indeed, were gathered from wall-trees twenty years' planted on a west aspect, were remarkable for their unusual size and fine development, hence the Cultural Commendation awarded. But Mr. Woodward holds that late Pears particularly need special attention, and each winter he strips off the top soil from over the roots of the trees, puts on a good dressing of half-decayed animal manure, and replaces the soil. Then, towards the autumn, when the fruit is swelling, he gives the trees liberal waterings, as then they specially need such aid. Still further, as the fruits enlarge, each one is securely tied to the branch from which it hangs by a piece of soft string fastened to the stem, as such assistance greatly relieves the strain on the stem when maturity approaches. Thus the fruits are allowed to hang so long as they can safely. Each fruit is protected from birds, not by fancy aids, but by pieces of round card about $3\frac{1}{2}$ in. over. These pieces have holes punched in their centres, and a slit is cut from this hole to the outer edge in each case. Then, when fixed over the Pear, the slit is opened, passed over the stem, and then allowed to close, the centre hole holding the stem. These cards are effectual protectors, not only from birds, but also from hail. Mr. Woodward speaks in high terms of them from his wide experience. *A. D.*

SOCIETIES.

ROYAL HORTICULTURAL Scientific Committee.

JANUARY 9.—Present: Dr. M. T. Masters, in the chair; Dr. H. Müller, Mr. Michael, Mr. E. im Thurn, C.M.G., and Rev. G. Henslow, Hon. Sec.

Horse-radish Attacked by Rhizoglyphus.—Some roots of this, as also of the Lily of the Valley, attacked by this mite, were received from Mr. Abbey, of Avery Hill, Etcham, who forwarded a long list of plants likewise attacked. Mr. Michael observed that it is a subterranean species, and that although it prefers bulbs, it is very injurious to many—indeed, most other plants with fleshy roots, though it may not thrive equally well upon them. As a remedy, Dr. Müller suggested lime and sugar or treacle, as being better and stronger than lime-water, as well as more persistent in its action. Mr. Michael also observed that heat, as in boiling water, was destructive, but the mite resisted chemicals to a remarkable degree. With regard to the life history, it passes through several stages, commencing with the egg; this gives rise to a hexapod larva, then to the nymph, a very active octopod. After a new change of skin in a large number of cases, but not in all, there emerges—with-out any discoverable cause—a being totally unlike the preceding, formerly known as *Hypopus*, having been thought to be a quite different genus. This has a soft body internally, but covered with a hard and usually chitinous integument. Its mouth organs are rudimentary, and it probably does not feed. It is provided with discs, by means of which it adheres to insects such as ants, bees, beetles, &c., and to other small moving creatures. These it utilises as means of migration, clinging to them, but without being parasitic. As soon as a suitable environment is met with, the mite changes back into the last nymphal stage, and then proceeds to pass into the adult male or female condition. It may attack plants in all stages, except that of the migratory *Hypopus*. The *Hypopus* in practically impervious to chemicals, and can endure without injury exposure to heat and drought, which would destroy the creature in any other stage.

Apples injured by Hail.—Some fruit was received from Mr. Woodward, of Barham Court, Maidstone, which had received severe injuries from hailstones. But although the skin was cut through and the flesh exposed, this had dried up and so protected the interior, which had not at all decayed. The storm occurred on July 19, 1899. Mr. Michael observed that when birds plunged their beaks into Apples through thirst, the injured spots usually resulted in decay.

ROYAL CALEDONIAN HORTICULTURAL.

JANUARY 10.—The annual general meeting was held on the afternoon of the above date in Dowell's Rooms, Edinburgh. This is one of the oldest horticultural societies in the kingdom, and has rendered very distinguished services to horticulture through the greater part of the century. It has two great shows in the year, the spring and autumn, both of which have done much to stimulate the love of horticulture among all classes of society, and they are so well supported by horticulturists as to strain to the utmost the ample resources of the Waverley Market. Mr. Buchanan of Penicuik occupied the chair. The secretary, Mr. P. Murray Thomson, read the report of the council, which regretted that neither at the spring nor the autumn shows was the attendance of the public such as the council desired and hoped for.

We can add our personal testimony that the exhibits at both shows were so numerous that considerable difficulty was found in placing them, and especially at the autumn display. The quality of the exhibits keeps pace with their increasing number.

Lord Lothian was unanimously re-elected President of the society, which was first instituted in 1809. Mr. D. F. Laird was appointed Vice-President by twelve votes, as against five given to the Earl of Moray. The following were chosen as Councillors: Messrs. George Mackinnon, Maasie (Dickson & Co.), Bryden, Innerleithen; and James Morrison, Archerfield. During the past year the Royal Caledonian Horticultural Society had lost twenty-one members by death, including Mr. M. Dunn and Mr. W. M. Welsh, to whose work and memory a feeling tribute was paid. *D. T. F.*

EDINBURGH BOTANICAL.

JANUARY 11.—A meeting of the members took place on the above date at their rooms, 5, St. Andrew Square, Edinburgh, under the presidency of the Rev. D. PAUL, the President of the Society.

Dr. William Craig read the report of a three days' excursion to Kirkby Lonsdale, Yorkshire, of the Scottish Alpine Botanical Club. Commencing with a description of the character and formation of the various hills, he proceeded to give an account of the plants found upon them. Amid the more notable among these were the popular garden plants *Lily of the Valley*, *Solomon's Seal*, and other garden plants, here growing quite wild. These and similar plants were also found on other mountains, such as Tarleton Fell and Hutton Roof. The very rare *Ribes alpinus* was also found on Sedburgh, in company with *Primula farinosa*, and *Genista tinctoria*. Mr. Craig's paper was richly illustrated with lantern-slides. In conclusion, he stated that the Society was founded in 1870, and gave a list of the principal plants that had been collected since that period. There was also exhibited an interesting collection of specimens collected during last year's excursion.

Mr. J. A. Terras, B.Sc., also communicated a paper, amply illustrated, on the "Lenticels of *Solanum dulcamara*."

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JANUARY 11.—RICHARD ASHWORTH, Esq., Newchurch (gr. Mr. Pidsley), exhibited the rare *Cypripedium venustum* var. *Measuresianum*, the "albino" of the type, and was awarded a First-class Certificate for same; also a very nice form of *Cypripedium insignis Sanderianum*, which has been previously dealt with by the Committee.

E. STANLEY CLARK, Esq., Wrexham (gr. Mr. Edwards), showed *Cypripedium insignis* "Stanley Clark," the chief peculiarity of which was a kind of fusion of the spots on the dorsal sepal into almost a complete mass, similar to that which is typical of *C. Boxallii*.

O. O. WHOLEY, Esq., Bridge Hall, Bury (gr. Mr. Rogers), staged a group of well-grown *Cypripediums*, amongst which was a fine form of *O. x Lathamianum aureum giganteum*, a name that somewhat overwhelmed the plant; *O. insignis Berryanum* was the best plant in the collection, it has a fine dorsal sepal of intense depth and fairly broad, while the markings are large and distinct (Award of Merit).

T. BAXTER, Esq., Morecambe (gr. Mr. Roberts), staged a handsome little group of Orchids, principally *Odontoglossums*. *Dendrobium heterocarpum*, also shown in this collection was very fine, being in a 14-inch pan, and having seventy or eighty pseudo-bulbs, about twenty-five of which were in full bloom (Cultural Certificate).

A very fine form of *Odontoglossum Wilckeanum* was staged under the name of *O. prinopetalum*, which the Committee corrected, and an Award of Merit was voted to the variety.

O. x Loochristiense was shown in flower, and was of better form than than exhibited at a previous meeting, it proves to be a very worthy acquisition to a popular class of plants; no further description of this is necessary than to say that it is an *O. x excellens*, with *O. x crispum* for a parent, instead of *O. Pescatorei* (First-class Certificate).

O. x crispum-Harryanum was exhibited from the same collection, and proved of much interest; at first sight this plant seemed to be a form of a very rare natural hybrid, viz. *O. x Wattianum*, and showed strongly the supposed parents of that Orchid, being of a yellow ground work, heavily spotted with brown markings, this colour, it appears, developed with the age of the flower. Two other examples of this hybrid, shown by Messrs. BACKHOUSE & SON, of York, had a whitish groundwork and brownish-red markings. The two exhibitors were awarded First-class honours for their plants. A Silver Medal was awarded to Mr. BAXTER's group.

W. G. GROVES, Esq., Windermere (gr. Mr. Robertshaw), obtained an Award of Merit for a very good form of *Cypripedium x Swinburnei magnificum*.

J. LEEHMAN, Esq., Heaton Mersey (gr. Mr. Edge), had a few plants, amongst which were *Odontoglossum crispum* var. *Papilion*; the varietal name is not quite descriptive, but the variety was good, and an Award of Merit was given. *O. x Adriane* var. *ornatum*, from the same collection, was awarded a First-class Certificate; it belongs to that very handsome section of natural hybrids between *O. crispum* and *O. Hunne-wellianum*, which cropped up a year or two ago. *Cypripedium Lawrenceanum* var. *splendens* proved to be a very striking variety, not too well shaped in its dorsal sepal, but certainly one of the richest-coloured forms extant (Award of Merit).

W. THOMPSON, Esq., Stone (gr., Mr. Stevens), showed a small group of Orchids, pretty amongst which were half-a-dozen well-flowered plants of *Masdevallia tovarensis*.

Odontoglossum Hunnewellianum var. *superbum* was voted an Award of Merit; while Cultural Certificates were awarded to *O. crispum* var. *Stella*, bearing a spike 3 feet long; and to *Lelia Gouldiana*, a fine plant, with many richly-coloured blooms.

T. STATTER, Esq., Whitefield (gr., Mr. Johnson), gained an Award of Merit for *Cypripedium* × *Leeanum* v. *Albertianum*; and a First-class Certificate for *O. Insigne*, Harefield Hall var.

Mr. JOHN RONSON showed a well-flowered *Lycaste* under the name of *L. Leichenaulti*, but which appears to be a form of *L. lanipes*, and an Award of Merit was given, subject to the name being verified.

Messrs. CHARLESWORTH & Co., Bradford, exhibited Worthington's var. of *Lelia anceps alba*, but the flower had suffered in transit.

T. W. SWINBURNE, Esq., Winchcombe, Gloucestershire, exhibited *Lelia Jongheana* in three varieties; the peculiarity of the labellum is very noticeable (Award of Merit).

E. BOSTOCK, Esq., Stafford (gr., Mr. Gill), exhibited two good *Cypripedium*s, viz., C. × "Collin" (*insigne* alba marginata × *villosum aureum*) (Award of Merit); and C. × *Lilian Greenwood* (*bellalutum* × *barbatum*), the latter of a very fine rich colour, and nicely shaped (First-class Certificate). P. W.

SOCIÉTÉ FRANÇAISE D'HORTICULTURE DE LONDRES.

THE members and friends of this prosperous Society celebrated the eleventh year of its existence at its annual dinner on Saturday, January 13. It was held at the Imperial Restaurant, Strand, there being a goodly assembly, over which M. GEOFFRAY, the French Minister in England, presided.

Among those present were M. Léon Clerc (Secretary of the French Chambre de Commerce), Mr. George Schneider (President Titulaire of the Society), Mr. George Gordon, Mr. Thomas Bevan (Chairman of the Floral Committee of the National Chrysanthemum Society), Mr. Harman Payne (Foreign Secretary of the same Society), Mr. Tucker, Mr. Gaskell, Mr. W. Howe, &c.

The first toast on the list was that of "The Queen and other members of the Royal Family," which was proposed by the Chairman, and very warmly received. Then came the health of the President of the French Republic, proposed by Mr. Harman Payne.

These were followed by "The Chairman," who, in reply, complimented the Society on its useful work, on its continued prosperity, and expressing satisfaction at the way in which it was cementing the good fellowship that existed between English and French horticulturists. He thought that nations as a rule did not know one another so well as they ought to do, and by means of such a Society as this much inter-communication of ideas arose, and could not fail to be beneficial. He concluded by asking them to drink to the "Continued Prosperity of the Society, and to the Health of its Officers."

Mr. Schneider responded, and gave details of the past year's work, which are of the most satisfactory nature, there being an increase in the membership of upwards of 100. Financially there is good cause for rejoicing, and the Society was in the position of receiving substantial support from many members of the horticultural trade in England, and others, some of whom he was pleased to see present; while he regretted that others, viz., Mr. George Nicholson, Mr. Arnold Moss, Mr. Drost, &c., were compelled through illness to be absent. He would conclude by asking them to drink the "Health of the Visitors." At this moment a tribute was paid to Mr. Schneider's interest in the young people, for whose benefit the Society was mainly started; and a testimonial, consisting of a handsome pair of porcelain vases, was handed to him in recognition of his help and assistance. Mr. Schneider suitably acknowledged the unexpected presentation.

Mr. Harman Payne replied on behalf of the visitors; and having proposed the "Health of the Absent Members," the proceedings were brought to a close.

Music and songs by the members enlivened the proceedings; and before separating, the company sang heartily the "Marseillaise" and "God Save the Queen." A collection in aid of the *Daily Telegraph* Fund for the relief of widows and orphans of British troops in South Africa realised the sum of 30s.

READING & DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

THERE was a large attendance of members at the fortnightly meeting of the Reading and District Gardeners' Mutual Improvement Association on Monday evening, the 15th inst., in the Club Room, The Old Abbey Restaurant, to hear Mr. G. HINTON, of Walmer Gardens, Reading, read his essay, which was awarded the first prize in the recent competition, "The Planting of a Garden with Hardy Fruit-trees and Bushes."

The paper gave rise to much criticism, and during an hour-and-a-quarter's interesting discussion many points upon planting, manuring, pruning, &c., were touched upon.

A hearty vote of thanks was accorded to Mr. Hinton for reading his paper; and to Messrs. Bunyard, of Maidstone, and the Hon. Secretary for a present of books to the library.

NATIONAL CHRYSANTHEMUM.

JANUARY 15.—A meeting of the executive committee was held at Carr's Restaurant on the above date. It was resolved that the annual general meeting of the members take place in accordance with the rules on Monday, February 5, at Carr's. A draft balance-sheet was submitted, which showed that the income for the year was £1093 0s. 5d.; and expenditure £76 4s. 6d., less, this sum being carried forward as a balance in hand. The balance of assets over liabilities was stated to be £225 13s. 2d., including the reserve sum of £74 11s. 2d.

A draft report of the committee was passed for presentation at the annual general meeting. It was resolved that sufficient be drawn from the current account to raise the reserve account on deposit to £100. It was resolved that for the future the meetings of the General Committee and of the Floral Committee should be held on the same day, namely, Mondays; and both committees will accordingly meet on Mondays, September 24, October 22, and November 26; the Floral Committee at 3 P.M., and the Executive Committee at 7 P.M.; and the Floral Committee will also meet on Monday, October 29, and November 12, at 3 P.M.; and on Tuesday, October 9, and Tuesday, December 4, at 1 P.M.

The judges at the various exhibitions nominated by the schedule revision sub-committee were approved, and also certain amendments to the regulations for exhibitions.

A recommendation from the schedule revision sub-committee to the effect that for the future the staging of exhibits at the shows should be carried out by a sub-committee of three, was carried on a close division.

A recommendation from the finance sub-committee, that all subscriptions be henceforth paid direct to the treasurer instead of to the general secretary, was withdrawn.

An interesting report of the visit of the deputation from the National Chrysanthemum Society to the Chrysanthemum exhibition held at Lyons in November last, was read by Mr. O. H. PAYNE. The deputation was heartily thanked, and it was ordered that the Report be published with the schedules of prizes, &c. Notice was given of amendments to certain rules which are to be proposed for adoption at the annual general meeting.

NATIONAL DAHLIA.

JANUARY 16.—The annual meeting took place at the Hotel Windsor, Mr. E. MAWLEY in the chair, there being a good attendance. The annual report commenced by a reference to the number of blooms staged at the annual exhibition. Of these, 1802 were show and fancy, 1803 Pompon, 1800 Cactus, and 816 single, making a total of 5730 blooms in all, rather under the usual averages, the decrease having been brought about through the dryness of the season. The display of Cactus blooms was magnificent, this type being very popular, and rapidly developing. A desire was expressed that extended opportunities be afforded for illustrating the decorative value of the Dahlia. After a recital of the new varieties which had been awarded Certificates of Merit, the report went on to thank the donors of special prizes; and in allusion to the membership of the Society, it was thought, seeing the wide interest taken in the Dahlia, it should be larger. The death of the late President, Mr. T. W. GIRDLESTONE, was deeply deplored; he was elected to the presidency of the Society in 1897, after having previously filled the post of Hon. Secretary for the space of nine years. In each of these offices Mr. Girdlestone devoted himself to the interests of the Society, and great things were expected as the results of his efforts in future years. The compilation of the catalogue of Dahlias exhibited by the Society was almost entirely his work, and his achievements as a raiser, cultivator, and exhibitor of single Dahlias were great.

The financial statement showed that the income of the Society from all sources, including the balance in hand of £15 3s. 9d. from the year 1890, and the contributions to provide prizes at the supplemental exhibition, amounted to £200 4s. 9d., and the entire expenditure, including the payment of all prizes awarded at the two exhibitions, left a balance of £7 10s. 2d. to be brought forward to the present year.

In moving the adoption of the report and financial statement, the Chairman remarked that the seasons of the Dahlia in the past two years were so hot and dry that there was a diminution of exhibits, and to some extent of quality. Some touching remarks were made on the death of Mr. Girdlestone. A memorial to their late President was being instituted to take the form of a specially struck medal, the cost of which would be defrayed by private subscription. In everything relating to the Dahlia it was necessary they should be abreast of the times, and this memorial would fittingly commemorate one who did so much for their favourite flower.

Mr. E. Mawley was elected president, Mr. Geo. Gordon and Mr. W. Marshall were added to the vice-presidents; Mr. Wilkins was elected Treasurer in the place of Mr. Mawley, and Mr. J. F. HUDSON was re-elected Hon. Secretary; the names of Messrs. J. Hudson, W. E. Reeve, and J. Stredwick were added to the Committee.

It was agreed that no supplemental show should be held this year, but some arrangement should be made for an exhibition of seedlings—if practicable, in connection with one of the meetings of the Royal Horticultural Society.

The list of Cactus Dahlias annually given in the schedule of prizes was revised, some new forms being added and some old ones struck out. The schedule of prizes was revised in several

particulars, and additions made, and it was agreed that a supplement to the catalogue should be prepared, and published in the schedule, doing this year by year as required.

MISCELLANEOUS SOCIETIES.

Isle of Wight.—The annual meeting of the Isle of Wight Horticultural Improvement Association was held on the 13th inst., in the Town Hall, Newport. Dr. J. GROVES presided over a large attendance of members from all parts of the Island. Twenty-two meetings and two exhibitions were held in various parts of the Island during the past year. There were six excursions made to places in and out of the Island, and a preparatory class was held for the Royal Horticultural Society's examination. There had been admitted 119 new members, and the total number on the books is now 437. Sir Charles Seely, Bart., J.P., was re-elected President for the ensuing year; Dr. J. Groves, Chairman; Mr. W. G. DENNESS, Secretary; and Mr. H. SLEEMAN, Treasurer. The proceedings were followed by a social entertainment at Warburton's Hotel.

Shirley Gardeners'.—The monthly meeting was held at the Parish Room, Shirley, Southampton, on the 15th inst., Mr. B. LADHAMS presiding. A paper was read on "Pear Culture" by Mr. W. Middlebrook, of Messrs. Veitch & Sons' nursery, Chelsea, was read by Mr. G. Miles, The Gardens, Portwood Park. The subjects dealt with were soils, sub-soils, position, planting, climate, stocks, pruning, insects, and diseases.

MARKETS.

COVENT GARDEN, JANUARY 18.

OUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

s. d. a. d.	s. d. a. d.
Arum Lilies, dozen blooms ... 14 0-18 0	Narcissus (yellow) doz bunches ... 6 0-8 0
Asparagus "Fern," bunch ... 2 0 2 6	— (double) doz. beh. 8 0-7 0
Carnations, per doz. blooms ... 2 6-5 0	— (white) doz. ... 3 0-4 0
Cattleyas, per dozen 15 0-18 0	<i>Odontoglossum</i> s, per dozen ... 4 6-9 6
Bucharis, per dozen 8 0-10 0	Poinsettias, dozen blooms ... 15 0-18 0
Gardenias, per doz. 8 0-6 0	Roman Hyacinths, doz. bunches ... 9 0-12 0
Lilac, white, bunch 5 0-7 0	Roses indoor, per dozen ... 3 6-7 6
Lilium Harriell, per dozen blooms ... 10 0-14 0	— Tea, white, per dozen ... 8 6-7 6
Lilium longiflorum, per dozen ... 12 0-16 0	— Yellow, Perles, per doz. ... 3 6-7 6
— landifolium album, per dozen 6 0-4 0	— Safrano, per doz. ... 2 6-3 6
— landifolium rubrum, per doz. 3 0-4 0	Smilax, per bunch Tuberoses, per doz. blooms ... 0 9-1 0
Lily of Valley, per doz. bunches ... 12 0-24 0	Tulips, per bunch 1 3-2 0
Maidenhair Fern, per doz. bunches 4 0-6 0	Violets, Parma, per bunch ... 8 0-12 0
Marguerites, p. doz. bunches ... 3 0-4 0	— dark (French), per doz. behs ... 2 6-4 6
Mignonette, dozen bunches ... 4 0-6 0	— (English), per doz. behs ... 4 0-5 0

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. a. d.	s. d. a. d.
Apples, in sieves: Blenheim, beh. 5 0-7 0	Cranberries, kegs (Russian) ... 2 0 —
— Northern Greenings, per bushel ... 5 0-6 0	Grapes, English, Alicante, per lb. 1 0-1 6
— Queenings, bus. 4 0-5 0	Grapes, Belgian ... 0 8-1 0
— Golden Knobs, per bushel ... 4 0-5 0	— Gros Colmar, Class A, per lb. 1 4-1 9
— Wellingtons, bushel ... 5 6-7 6	— Class B, per lb. 1 0 —
— Various, bushel 2 6-6 0	— Muscats, Cl. A, per lb. ... 2 0-3 0
— Nova Scotia, various, barrel 17 0-22 6	— Almeida, dr. lb. 6 0-9 0
— Baldwin's, barrel ... 20 0 —	— barrel ... 24 0 —
— Greenings, barrel ... 18 6 —	Lemons, Messina, 300 ... 6 0-12 0
— Golden Russets, barrel 25 0 —	Lychees, Chinese, new, pkt., 1 lb. 1 0 —
— Californian, cases, New Town and Red. 6 0-10 0	Oranges, Denia, 420 8 0-14 0
— Various Cooking, per bushel ... 2 6-6 0	— Blood ... 8 6-10 0
Bananas, per bunch 6 0-10 0	— Jaffa, case of 144 ... 9 0-10 0
Chestnuts, per bag 5 0-5 6	— Mandarin, boxes 8 0-1 3
— Spanish ... 15 0 —	— Murcia, case of 240 ... 8 6-10 0
Citrons, each ... 0 9-1 0	— Valencia, case 13 0-15 0
Cobnuts, per lb. ... 0 7 1/2	Pears, half cases ... 10 0 —
Cranberries, case 6 0-7 0	— Californian Master Beurre ... 12 0 —
— American, per qt. ... 0 4 —	Pines, each ... 1 6-4 0

PLANTS IN POT.—AVERAGE WHOLESALE PRICES.

s. d. a. d.	s. d. a. d.
Adiantum, p. doz. 5 0-7 0	Foliage plants, var., each ... 1 0-5 0
Arbor-vitæ, var., doz. 6 0-8 6 0	Lily of Valley, each 1 9-3 0
Aspidistra, p. doz. 18 0-36 0	Lycopodiums, doz. 8 0-4 0
— specimen, each 5 0-10 6	Marguerite Dahlias, per dozen ... 8 0-12 0
Crotons, per doz. 18 0-30 0	Myrtles, per dozen 6 0-9 0
Dracenas, var. doz. 12 0-30 0	Palma, various, ea. 1 0-15 0
— viridis, per doz. 9 0-18 0	— specimen, each 21 0-43 0
Ericas, var., per doz. 18 0-36 0	Pelargoniums, scarlet, per dozen 8 0-12 0
Eunymus, various, per dozen ... 6 0-18 0	Poinsettias, p. doz. 18 0-30 0
Evergreens, var., per dozen ... 4 0-18 0	Primulas, per doz. 5 0-8 0
Ferns, small, per 100 4 0-6 0	Roman Hyacinth per doz. ... 10 0-12 0
Ferns, in variety, per dozen ... 4 0-18 0	Tulips, per doz. ... 1 6-2 6
Ficus elastica, each 1 6-7 6	

VEGETABLES.—AVERAGE WHOLESALE PRICES

a. d. s. d.	a. d. s. d.
Artichokes, Globe, per doz. ... 3 0 —	Mint, new, Ch. Is., p. doz. bunches ... 4 0 6 0
— Jerusalem, per sieve ... 1 0-1 3	Mouks' (Barbe de Capucine), p. bunch ... 0 4 0 5
Asparagus, Spruce, per bundle ... 0 7-0 8	Mushrooms, house, per lb. ... 0 8-0 10
— Giant, bundle ... 7 -10 0	Onions, bags ... 5 0-6 0
— Paris, Green, per bundle ... 3 6 3 9	— Bordeaux, boxes ... 3 6-4 0
— Spanish, budl. ... 1 9-2 0	— picklers, in sieves ... 2 6-3 0
Beans, Channel Islands, per lb. ... 2 0 2 6	— Valencia, cases ... 7 6 —
— Madeira, per basket ... 3 0-5 0	— English, cwt. ... 6 0 6 6
Bestroot, new, per dozen ... 0 6-1 0	— German, bags ... 5 0 —
— in bush ... 1 3-2 0	— French ... 5 0 6 0
Broccoli, Cornish, crates ... 5 0-7 0	Parley, per dozen bunches ... 1 0-2 0
Brussels Sprouts, p. sieve ... 1 6-2 3	— per sieve ... 1 0 —
— per bushel ... 2 0-2 6	Parinipi, per dozen bag ... 0 6-1 0
Brussels Sprouts, Tops, per bag ... 1 0-2 0	Peas, New Green, lb. ... 0 6 —
Cabbage, tully ... 4 0-7 0	Potatoes, Old vars., per ton ... 10 0-9 0 0
— dozen ... 1 0-1 6	— Dunbar Main Crop, per ton ... 100 0-105 0
— Savoy, p. tully ... 4 0-10 0	— New French in boxes, lb. ... 0 — 4 ½
Carrots, English, p. dozen bunches ... 2 0-2 6	— Tinneriff, in boxes, cwt. ... 9 0-14 0
— good, cwt. bags, washed ... 3 0-3 6	Radishes, Long, pr. doz. ... 0 10-1 0
Cauliflowers, dozen ... 1 6-3 0	Radishes, round ... 1 3 1 6
— Cornish crates ... 5 0 6 0	Rhubarb, Yorks, pr. dozen bunches ... 1 3-1 6
— Italian, baskets of 18 ... 3 6 —	Salad, small, punnets, per dozen ... 1 3 —
Celeriac, per dozen ... 1 9 —	Salsify, bundle ... 0 4 —
Celery, red, per roll dozen ... 8 0-13 0	Scotch Kale, bush. ... 2 0-2 6
Chicory, per lb. ... 0 5 —	Seakale, per dozen punnets ... 10 0-15 0
Colewort, p. bush ... 1 6-2 0	Shallots, per lb. ... 0 8-0 3 ½
Cress, dos. punnets ... 1 6 —	Spinach, French, crates ... 2 6-3 0
Cucumbers, dos. ... 5 0-10 0	Spinach, Winter, per bushel ... 4 0-5 0
Endive, new French, per dozen ... 1 9 2 0	Sweet Potatoes, lb. ... 0 3 —
— Batavian, dos. ... 2 0 2 0	Tomatoes, Canary, deeps ... 3 0-4 6
Garlic, new, per lb. ... 0 2 —	Tomatoes, Trays ... 1 6 2 0
— per cwt. ... 14 0 —	Turnips, per dozen bunches ... 2 0-3 0
Horseradish, Eng. Hal, bundle ... 1 6 —	— cwt. bags ... 3 0-4 0
— foreign, r. bdle ... 1 0-1 2	Turnip Tops, bags ... 2 0 —
— loose, fine, dos. ... 1 9 —	Watercress, p. doz. bunches ... 0 9 0 10
Leeks, dos. bunches ... 1 6 2 0	
Lettuce, French, Cabbage, per dozen ... 1 0-1 6	

POTATOES.

Main Crop, &c., 70s. to 90s.; Dunbar Up-to-Date, 100s.; Dunbar Main Crop, 105s. Other varieties, 65s. to 85s. John Bath, 32 & 34, Wellington Street.

REMARKS.—Trade generally is slow. Dunbar Potatoes are not in much request; good Savoy is a commanding vegetable; Cauliflowers and Broccoli are low in price. Cape fruits, according to advice to hand, are expected shortly. Plums will be the chief part of the consignment. The French Onions now being sent in bags are of very good quality.

(For remainder of Markets and Weather, see p. x.)

TRADE NOTE.

THE RHODES NURSERY, MIDDLETON. CHANGE OF PROPRIETORS.

We are informed by Mr. Alexander Hoyle, formerly gardener at Beech House, Heywood, Manchester, that he, in company with Mr. George Clarricoates of Manor House Gardens, Hallaton, Uppingham, have succeeded Mr. Isaac Simpson in the business of nurserymen, seedmen, and florists, carried on at the Rhodes Nursery, Middleton, Manchester.

ENQUIRY.

ASHBOTTIN'S DRESSING FOR FRUIT-TREES.—Will some reader of the *Gardeners' Chronicle* kindly inform B. M. & Sons where they can obtain this protective dressing?

ANSWERS TO CORRESPONDENTS.

APPLES WITH SPOTTED FLESH: T. H. The fruit is attacked by *Penicillium glaucum*, which penetrates the rind by wounds or the lenticels, causing the brown-spotting noticed, and eventually the premature destruction of the fruit. Spraying several times in the summer with the Bordeaux Mixture would keep the fruit free of fungus foes, and this one among others. Moist air in the fruit-room favours the spread of the fungus.

ASPECT AND VENTILATION OF GLASSHOUSES: W. Brown. A house at right angles to the south must be at right angles to the sun's rays at 12 noon. Surely this is clear. Bottom ventilation as recommended as a means of ventilation

is quite another matter from opening the top ventilators of a vinery, for instance, to regulate the temperature. W. W.

BOOKS: R. Owen. *An Illustrated Natural History of British Moths*, by Ed. Newman, was published by W. Tweedie, of 337, Strand, W.C., in 1869. You might meet with the work at the second-hand book shops.

BOTANIC GARDENS: A. C. Brazil—Rio Janeiro; Director, J. Barbosa Rodriguez. *British Guiana*—Berbice; Keeper, R. Hunt. Georgetown, Superintendent, G. S. Jenman. *Peru*—Jardinero Botanico, Lima; Director, M. de los Rios. *Venezuela*—Caracas, Jardin Botanico, and Museo Nacional; Director of latter, A. Ernst; Jardin Botanico de la Universidad, Director, P. H. G. Bourgois. *New Grenada*—F. Carl Lehmann, (German Consul, Popenyan; systematic collections Orchids, flora of Ecuador, Peru, Colombia, Costa Rica, Guatemala, &c. *Chile*—Santiago, Jardin Botanico; Director, Fredrico Phillipi.

CHRYSANTHEMUMS: J. A. W. You are quite right; the brown patches upon the leaves sent are the visible signs that the plants have been for some time attacked by the fungus *Puccinia Hieracii*, commonly known as the Chrysanthemum "rust" fungus. You may find an illustration of a leaf so attacked, and the fungus itself magnified, by referring to the *Gardeners' Chronicle*, October 8, 1898, p. 269. Adopt the treatment there recommended.

DOUBLE MUSHROOM: F. W. It is a case of the spawn having crept over the top of another Mushroom and vegetated there, and with the pileus (gills) uppermost. The occurrence is not rare in Mushroom-beds.—A. M. Such cases are frequent.

DISCOLOURED BLOOMS OF RICHARDIA, PRIMULA, &c.: C. H., St. Leonards. The causes of discoloration may be various, namely, fumes from the furnace, from the hot-water pipes, from factory chimneys, strong winds off the sea heavily laden with salt, ingress of frost, &c. You have set us a puzzle, and afforded no information that would assist our judgment.

GARDENERS' WAGES DURING ILLNESS: G. F. C. The usual practice is to pay full wages for a few weeks, or till it is seen that complete recovery is in sight. In the case of prolonged illness, the matter would seem to us to rest with the employer or his agent. There is no rule that applies, excepting in the case of a gardener living in a bothy, who would have the same status as a domestic.

NAME OF FRUIT: W. T. Gascoigne's Scarlet Seedling.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—Subscriber. 1, *Phyllostachys aurea*; 2, *Arundinaria japonica*; 3, *Arundinaria japonica*; 4, *Arundinaria japonica* (syn. *Bambusa Metake*); 5, *Arundinaria nobilis*; 6, *Arundinaria auricoma*; 7, *Arundinaria Fortunei*.—W. Bean and G. C. Thank you for sending such good specimens. Oh, that there were more like you! 1, *Abies concolor*; 2, *Picea Khutrow*; 3, *Sequoia sempervirens* (Red Wood); 4, *Pseudotsuga Douglasii*; 5, *Picea Morinda*; 6, *Gaultheria Shallon* (extra fine).—Sam. The yellow flower is *Reinwardtia tetragyna*, illustrated in the *Gardeners' Chronicle*, December 15, 1894, p. 721. The other is probably one of the Aloe tribe, but it is impossible to say by the scrap sent.—Hartwell. A very good variety of *Cypripedium* × *Lecanum*. The other is *Rhea discolor*, commonly called *Tradescantia discolor* in gardens.

PEACH-BORDER: Old Subscriber. If the natural soil is adhesive, or the situation low, raise the border a foot or higher than the general level. Make it at the least 2 feet deep, and put in rubble-drains at right angles to the wall, 20 feet apart and 3 feet deep. Cover the rubble with sods. If you possess the material, let the border consist of pasture-loam, which should be chopped up roughly, and mixed with one-sixth its bulk of horse-droppings and 2 bushels of lime-rubble per cart load. Make it at the least 1 foot higher than its future level, and trample the loam pretty firmly if it be not wet at the time. Filling a full supply of loam, the staple-soil must be used, but it should be brought from a part of the garden not previously cropped with stone-fruits, and

it should have some fresh loam and the other substances mixed with it. We will give you the names of varieties in our next issue.

PHYLLOXERA: American Correspondent, Massachusetts. We have not seen or heard of this in English vineries for the last few years. Radical measures, familiar to you, have kept the enemy at bay. In France and Switzerland, and in most wine-growing countries, grafting on American stocks has proved most successful. Bisulphide of carbon is an inflammable liquid, which requires care in using. No matches, and needless to say, no smoking, should be allowed in its vicinity. It is injected into the soil when the Vines are at rest, by means of a special syringe, manufactured by Vermorel of Paris. The quantity used is 10 grammes, or one-third of an ounce, and this is injected into the soil to a depth of 4 to 6 inches, or deeper in the case of heavy soils. One such injection will serve for one square yard. After the injection is made and the syringe withdrawn, stamp the soil round the Vine, so that the vapour shall not escape. The bisulphide, when properly applied, kills the insect without injuring the roots, but it does not kill the eggs. If the soil is clayey, the results are not so satisfactory. We have no doubt Richards' XL All would prove very efficacious in the case of the leaf form, but in this country the leaf form was always less common than the root form, and we have had no opportunity of trying the effect of concentrated nicotine vapour. The winged form is said to appear about midsummer, but we have never seen it. If your second house is still free from the pest, put it in charge of a different set of gardeners, so that there shall be no communication "by boots" between the two. The winter egg is deposited on the roots in autumn, and hatched in spring. From May till October six generations of sexless insects are developed, varying in their character, the last formed descend to the roots in autumn. Take care to burn all affected parts so far as possible. We thank you for your good wishes, and think you must be the worthy son of a worthy sire, since the perusal of the *Gardeners' Chronicle* has become hereditary! We, however, consider the *Gardeners' Chronicle* and its supporters much too young and vigorous to be likened to the "Grand Old Man!"

TULIPS, HYACINTHS, ROMAN AND OTHER, FAILING TO GROW: A. W. The case appears identical with some bulbs sent us in December last by "C. W." and "C. H.," and we would refer you to the reply given at p. 492, December 30.

VINES AND PEACHES: J. Bean. You will be acting rightly by proceeding in the manner described. The proportion should be three-fifths loam, not much decayed in regard to its fibre; one-fifth lime-rubble or quicklime in powder, one-fifth manure, but depending rather more in this aid to growth on liquid-manure afforded when growth is most active, much manure in a Vine-border under glass being undesirable. You might afford a manurial mulch in the summer if your loam is light or sandy. Soot always does good when used in moderation; in excess, it makes the surface pasty, and prevents the ingress of air to the roots. One pint to 2 square yards is enough to afford at one dressing, and thrice during growth is sufficient. It will not be enough to give all your attention to the top of the border; but you ought to ascertain the state of the border and the roots down to the bottom, and the drainage. If the soil is found to be close in texture, and unduly wet, and the Vine-roots are destitute of the finer roots which collect nutriment, things are not satisfactory, and you will have to collect materials for a new border to be made next October or November. The drainage is a very important matter. Provided you do this, your Vines and Peach-trees may be kept in a good bearing state for many years.

COMMUNICATIONS RECEIVED.—S. A.—J. K. King.—S. H., Batten Pool.—Dr. Eric, Rennes.—G. M. West.—O. T., Frogmore.—F. T.—T. P., Antwerp.—G. W.—G. G.—A. W.—B. W.—Bailey Wadda.—H. B. C.—D. H., Cootich.—R. D. J. E. J.—C. T. D.—G. Mackinlay.—A. C. F.—D. T. F.—H. W. W.—W. W.—E. H.—W. H. S.—P. M. T.—E. M.—G. H.—R. P. B.—St. Julien Arabin.

DIED.—On January 16, CHARLES WOOD, of Woodlands Nursery, Maresfield, Uckfield, aged 84 years.



THE Gardeners' Chronicle

No. 683.—SATURDAY, JAN. 27, 1900.

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"THE PRAISE OF GARDENS."

THE Praise of Gardens, an Epitome of the Literature of the Garden Art, by A. F. Sieveking, consists of two parts. The first consists of quotations from writers on gardens arranged chronologically (pp. 1 to 313), and a "Historical Epitome" (pp. 315 to 413). The author is not so much concerned with the plants cultivated as with the characters of the gardens themselves. These are readily divisible into two kinds—rectangular enclosures with numerous beds, divided by small paths, which prevailed from the earliest times to the seventeenth century; then, the more natural and varied character of park-like scenery, effected by landscape gardening, which began to supersede it, though both kinds may be combined, as they are about many of our English mansions of to-day.

The earliest historical gardens are those of Egypt, pictures of which are engraved on the walls of tombs; one from that of a military chief of the eighteenth dynasty was figured by Daubeny in his *Roman Husbandry*, and is reproduced by the present author. The "hanging gardens" of Babylon appear to have been artificially constructed on arches bearing terraces, and rising in series one above the other. Those on the small island of Isola Bella, in the Lake Maggiore, seem to be a good imitation; all the earth for the last was brought from the mainland.

The garden mentioned in the Song of Solomon is of the rectangular type, walled in, and pro-

vided with raised beds of herbs. It was into such a garden that Ahab converted Naboth's vineyard.

The Greeks had olive grounds and orchards, but no gardens that we know of, in our sense of the word.

The ancient Romans appear to have done better; for we have descriptions of gardens by Varro, Pliny, and others, both outside and within cities. Loudon, in his "History of Gardens" (in the *Cyclopædia*), gives plans of the Laurentine-villa on the Tiber, now called San Lorenzo. Pompeii has also preserved them, now restored and replanted, as shown by a photograph—an excellent example—growing in a rectangular enclosure, with pillars down the sides, trellises, pergolas, statuary and fountains, &c. In fact, it closely resembles a garden of the last century of some nobleman's establishment.

Similar gardens, but simpler, existed by the early monasteries and abbeys, though, as the Hon. Miss Amherst points out, the relics of them are now few. Their contents consisted of kitchen-herbs and medicinal drug-plants, arranged in parallel beds, each bed being, as a rule, devoted to one kind of plant.

Gardens of the Norman dynasty more resembled our orchards, as "comparatively few trees or esculent plants were known in England till even the latter centuries."

Little remains now of the old Abbey gardens; but Miss Amherst has given a charming photograph of a corner of the garden of Ashridge,* with its Box "knott" and edging, which may perhaps represent its primitive condition. Topiary work, a favourite form of ornament with the Romans, has been carried on even down to the present time.

Of Italian gardens of the sixteenth century, the author refers to, and gives an illustration of those of "St. Germain-en-Laye, built for Henry II., running down to the Seine in a series of terraces, under which were grottoes in rock and shell-work, and figures disporting themselves in the waters, were considered one of the marvels of the age."

Miss Amherst's illustration of a garden in a town, from a French MS., of the late fifteenth century, shows how the Roman plan of having a number of rectangular beds was persistently adhered to. Exactly such a garden is described by Carolus Stephanus in his little work, *De Re Hortense Libellus*, 1545, A.D.†

The best and greatest example of Tudor gardens was that of Hampton Court. "They were characterised by moats and walks, while the 'knotted' beds are railed with painted wands, or surrounded with low fences of trellis-work. Mounts at the corners, galleries, dials, cabinets of verdure, columns, and pyramids of marble, topiarian work and fish-ponds, complete the details."

"As an introduction to the Elizabethan garden we must return to Italy. . . . The mediæval Italian gardens are founded upon the Roman villas, evolving into fortified cities or monasteries, of which many of them occupy the sites." An illustration of the Villa d'Este, Tivoli, gives an excellent idea—"The terraces, rendered necessary by the hilliness of the ground, with flights of steps leading to the different levels; the piazzas, for shade and air; avenues and plantations of Olive, Vine, and Myrtle; fountains, statuary, urns, and vases; these are the decorative elements of the later

stately architectural Italian gardens, with their fine perspectives." The illustrations of the terrace and well-house in the garden of the late Mr. Harry, of Malta, given in the *Gardeners' Chronicle*, April 12, 1890, p. 447, will show how this type of garden was imitated there.

We now reach the date of Gerard's *Herbal*, 1597, when "physic gardens" were advocated. He himself proposed that one should be made at Cambridge, "to encourage the faculty of simpling." "The *Herbal* was, so to speak, the *Catalogue Raisonné* of the physic gardens, which, on the revival of learning, were instituted one after another throughout Europe." That at Chelsea is the last, still so called, in England.

It must be borne in mind that plants were mainly cultivated for their medicinal values, real or imaginary, as well as for culinary purposes. Thus, the Cabbage, though always cultivated for food, yet was supposed in Pliny's time to have eighty-seven distinct medicinal virtues! And although plants with conspicuous flowers were grown, as Poppies, Pæonies, Marigolds, Violets, Wallflowers, &c., yet it was as much for their curative properties as for beauty, though many were used for chaplets and other decorative purposes.

"The Dutch style of laying-out gardens, introduced into England by William III. and Mary, is not unlike the French; but everything is on a smaller, almost too minute, a scale, and much care is expended upon isolated details and ornaments (often trivial), such as glass-balls, coloured sands and earth, flower-pots innumerable, and painted perspectives; and the garden is usually intersected with canals degenerating into ditches."

Hampton Court, in Queen Anne's reign, was the finest example in England of the Dutch style, of which a bird's-eye view is given, as it appeared in 1706.

With regard to the second, or natural class of gardens, it appears "the reaction in favour of them was largely assisted by the letters of the French Jesuit missionaries describing the Chinese Emperor's gardens at Peking," of which an illustration is given, "begun in 1723, pillaged during 1860."

"Landscape-gardening, as understood in the eighteenth century, may be defined as the curved *versus* the straight line . . . later on, the curved became less manageable; and finally zig-zagged to such a degree that a witty Frenchman suggested that in order to design an English or natural garden, all that was requisite was to intoxicate your gardener and follow his footsteps!" Several eminent names are associated with the new style, such as Kent, the originator of modern park scenery, and "Capability" Brown, and "Amenity" Repton. The author finally considers some foreign gardens, European and Asiatic.

The book is a very interesting one, and although the *History of Gardens in England* of Miss Amherst overlaps certain portions, this is immaterial, and the illustrations are good and apposite. *George Henslow.*

ORCHID NOTES AND GLEANINGS.

DENDROBIUM × CURTISII.

IN the year 1896, Messrs. F. Sander & Co., of St. Albans, flowered a pretty-looking hybrid between *Dendrobium* × *Cassiope* and *D. aureum*, and gave it the name at the head of this note. The same year the Right Hon. Joseph Chamberlain flowered a cross between *D.* × *Ainsworthi* var.

* *A History of Gardening in England*, p. 28.

† An account of this was given by the present writer in the *Gardeners' Chronicle*, December 11, 1897, p. 425.

and *D. × Cassiope*, which bore a remarkable resemblance to the one previously named. Indeed, it seems to be a characteristic of all *D. × Cassiope* crosses, no matter how remote the other parent, to adhere closely in form and in the arrangement of the segments to *D. Cassiope*.

A good example of *D. × Curtisii* has been sent by J. I. Holmes, Esq., Beechen Cliff, Bath. Its flowers, which are 3 inches across, have the sepals and petals arranged like *D. Cassiope*, white, with a faint primrose tint; lip similar in colour to the petals, but with a bright purple disc. Flowers fragrant, like *D. aureum*.

HEMARIA DISCOLOR.

With those who succeed in cultivating it successfully, this is an excellent white winter-flowering terrestrial Orchid, the handsome leaves rendering the plant well worthy of a place as an ornamental subject. The old form has velvety, olive-green leaves, purple beneath; the variety *Dawsoniana*, dark bronze, veined with copper-red; and the variety *Ordianus*, bright green leaves, with gold-coloured markings. All the species have much the same sort of flowers, which are borne in numbers, from ten to twenty on the upper part of the flower-stalks, which are about 9 inches to 1 foot in height. The flowers are white with a yellow centre, and each has at its base a pinkish bract almost as long as the ovary. It thrives well in an ordinary stove-house, potted in turfy-loam, with a small quantity of peat and sphagnum-moss added thereto. A fine inflorescence taken from a plant which bears four spikes is sent by H. Cary-Batten, Esq., Abbots Leigh, Bristol.

ZYGOPETALUM MYSTACINUM.

DESCRIBED in 1881 as *Kefersteinia graminea* from a plant collected by Falkenberg, and flowered by Consul Kienast-Zolly, of Zurich, it seems singular that this *Zygopetalum* should again appear in the same locality. The plant this time has flowered with Frau Ida Brandt, Brunnenhof, Riesbach, Zurich (gr., Mr. Schlecht), who kindly sends flowers and a photograph of the plant (fig. 14).

It may be designated a pretty and curious botanical species, equal in merit to the plant known in gardens as *Kefersteinia graminea*. The sepals and petals are yellowish, the lip lighter in tint and nearly white, the callus and stalk of the lip pure white with purple dots.

The species belongs to a section of leafy *Zygopetalums*, including those known as *Batemannia*, *Bollea*, and *Pescatoria*, all of which are considered difficult to cultivate here. This difficulty most likely arises from the fact that Orchid growers keep them associated with pseudo-bulbous species. They thrive best when grown together in a tolerably warm, moist house (one inner compartment opening out of another house). Plants of this section usually do well with *Miltonia Roezlii* also, and like that species, they are liable to be greatly injured by cold currents of air. J. O'B.

SOME SUSSEX FRUITS.

(Continued from p. 445, vol. xxvi.)

II. — THE QUINCE.

THE Medlar, if not a true native, is naturalised in Sussex. Not so the Quince. It has never made any pretence to belong to the British flora. If, however, there is any county in England where it would be likely to escape the boundary of the orchard, and grow in the hedgerow, that county is Sussex. The fruit nowhere else attains so large a size or so rich a flavour and hue. In the north it is unknown. The correctness of the following note will be acknowledged by those who have studied the distribution of fruits, as well as by those who have resided in different parts of England and in foreign lands. "The cultivated Apple is thought to be a variety of the Crab, and may therefore be considered a native of England. Its near relations,

the Pear and the Quince, are not natives of England, but are found wild in the southern parts of Europe. The Quince scarcely succeeds in the northern counties of England. It has not been known to ripen its fruit beyond the Tees more than twice in twenty years, though it flowers freely. The Medlar, the Walnut, and the Chestnut succeed no better." In Sussex the Medlar, the Quince, the Walnut, the Chestnut, and the Fig are all equally at home.

There is the widest possible [superficial] difference between a Quince and a Medlar. The latter is a small, rough, brown fruit, with a very large superior calyx, which persists to the end. The Quince, on the other hand, has much the appearance, in the finest fruits, of a golden Pear with a smooth rind. Its shape varies, as does that of the Pear, but one species assumes the more globose form of the Apple when properly cultivated and developed. It is a pretty sight for a stranger to gaze upon a Quince-tree when the fruit is ready for picking, but there are many people who find its peculiar and dis-

and Quyne, all of which correspond with the French Coin or Coing, a Quince. All the forms are ultimately referable to Italian Cotogna, the Latin Cotoneum, which stands for Cydonian, and so brings us to the Greek word for the Quince, namely, Cydonian Apple. Cydonia,* one of the chief cities of Crete, was one of the places where it was originally cultivated with great success, and when the Greeks saw it there, or received it from the City, they applied this name to it, just as we still call the little dried Grapes which our merchants bring from Greece, Corinth, or Currants. This custom of naming products after their place of growth or export is common enough. We have port from Oporto, while sherry and many other names tell the same story. Having traced the name back to the Greeks we may now make the early allusions to the fruit our starting point, and bring its history down to modern times. As no name for the Quince has been found in Sanskrit it is assumed that the fruit was unknown to the early Aryans. This suggests that it did not grow



FIG. 14.—ZYGOPETALUM MYSTACINUM.

tinctive scent objectionable. Just as some people never acquire a taste for the Mango or the Tomato, so there are those who cannot relish the Quince. It is curious to note the effect of false derivations. Thus in French the Quince-tree is known as the *Coignassier*, and an able writer affirms that the name was applied to it because the disagreeable odour of the fruit requires that it should be placed in a coign or corner of the orchard or garden. I called one day in November on some friends, who grow a considerable number of Quinces. As we chanced to allude to the subject, the gentleman said he would bring me some specimens. He left the room, but on returning said the cook had made them all into jelly as soon as they were brought in, because the odour filled the house unpleasantly! It would appear that Du Hamel thought the name had been coined by the French, whereas a simple reference to the form it assumes in the allied languages would instantly have shown him that the name had an origin and history quite independent of Gaul.

The history of the name is long and interesting. In Sussex it is frequently called Quintzey (perhaps because it had some supposed connection with quincy), and in old books it is spelt Quence. Earlier still we find it in English as Coin, Coine,

beyond Central Asia, although it is found wild in the woods in the northern parts of Persia, where it is known as Haivah. This may be the same word as the Russian aiva—the cultivated Quince, as distinguished from the word armud, from the Armenian armada, the wild Quince. The names which exist in Poland, Albania, and elsewhere, are evidently not imported, but belong to the languages of the people, from which we may reasonably infer that the fruit was not introduced commercially, but was known ages ago as an indigenous growth, or a fruit which had long become established in those countries.

Pliny, the verbose and gossiping author of a work on natural history, which constitutes a vast storehouse of information on all that the ancients knew about these matters, has something to say respecting the Quince, which shows its antiquity in Greece. With all gravity, he informs us that a circle is traced around the root of the tree, and the root itself is then pulled up by the left hand. If care be taken by the operator to state at the time what is the object for which the root is procured, and for whom it is required, it may be successfully

* Some writers assert that Cydonia was so named on account of its fruitfulness in Quinces, but they do not say how the Quince obtained its name.

worn as an amulet, or employed as a cure for the scrofula. One is reminded of the Mandrake, and the curious rites associated with that wonder-working plant. From Pliny also we learn that from it an oil was extracted. It was called melinum (from *Mélon*, a fruit, an Apple; the Quince being known as *Mélon cydonia*), and in order to make it choice must be made of fruit which had grown in a dry soil. For this reason Quinces, which were imported from Sicily, were most highly esteemed. The Quince-tree has twice been found figured among the frescoes of Pompeii, which indicates the knowledge the ancients possessed of it. In Pliny's time the fruit was suspended on the statues of the divinities which ornamented the bed-chambers of the rich. This custom lends colour to the statements frequently repeated by early writers, that the Quince was associated with love. It was consecrated to Venus, and looked upon by Grecian lovers as a token by which they

pungent smell, and also ripen later than the others. De Candolle remarks that, though this fruit was probably naturalised in the east of Europe before the epoch of the Trojan war, it has been little modified by cultivation, and is as hard and acid when fresh to-day as it was in the time of the ancient Greeks.

As to the distribution of the Quince, we find it wild in Northern Persia, "near the Caspian Sea, in the region to the south of the Caucasus, and in Anatolia. A few botanists have also found it apparently wild in the Crimea, and in the North of Greece; but naturalisation may be suspected even in the east of Europe, and the further we advance towards Italy, especially towards the south-west of Europe and Algeria, the more it becomes probable that the species was naturalised at an early period around villages and in hedge-rows." Though there is no Hebrew name for the Quince, the tree grows wild on Mount Taurus;

Greeks already produced the finest fruit by grafting. They employed a wild or common variety of the Quince for the stock, while the graft was taken from the superior kind, which came from Cydon. With ourselves, the Quince is raised by layers, but budding and grafting are also resorted to, and the Pear is often employed as a graft, with the Quince as stock. The fruits require great care in gathering and storing, since they are readily injured by rough handling, in spite of their apparent firmness. Wasps often attack them to such an extent that the whole crop begins to decay as soon as gathered. There are now several varieties in cultivation, the fruit in one case being shaped like a Pear, in another resembling an Apple; while the Portugal Quince, with its oblong, more juicy, and less harsh fruit, is in special request for marmalade, the pulp assuming a beautiful red or purplish tint when carefully prepared. With many people, this kind of preserve is held in the highest esteem. It should be observed that though the word marmalade is now principally used of a conserve made from Oranges, it originally related to Quinces, and came from the Portuguese, who call that fruit "Marmelo," and the tree "Marmeleiro." This name is associated with the Latin *Melimum*, sweet or Honey-Apple Quince, and the Greek word for a sweet Apple, or an Apple grafted on a Quince stock. Though the fruit is not eaten raw, it is much esteemed by many people when cooked with Apples in pies and tarts. A syrup is made from its juice, and the seeds are employed in medicine on account of the mucilage they yield. It has an emollient effect on cracked lips and inflamed parts, and is also employed by hair-dressers when making plaits and braids. The old Greek physician, Hippocrates, employed the fruit as an astringent in cases of diarrhoea. In Sussex, a further use is made of it by the careful housewife, who places the fruit among her linen, and thus imparts to the wardrobe a grateful odour, while at the same time she keeps the fruit under the best possible conditions. Gerard has much to say about the Quince, but he closes his notice with words which are very suitable to our present study. There are, he says, "many other things which, for brevity sake, I let pass." *Sussex Naturalist*.

A WONDERFUL ARGYLL-ROSE.

THE accompanying photo (fig. 15), taken during last summer, shows a wonderful display of white Argyll-Roses in the gardens of Canon Norman at Berkhamstead, Herts. The flowers are commonly produced in loose clusters of three to seven.

It would seem that two Yew-bushes were originally planted at a distance from each other of 4 to 5 feet. Two Rose-trees were also planted, the intention evidently being that they would in the course of time cover the arch.

Presumably, one Rose-tree has died, but the remaining one has sworn eternal friendship for the Yew-trees. From the first they have grown up together. The Rose utilises the Yew for its support, and hangs over it everywhere with its long trailing branches and exquisite festoons, covered with pure white blossoms, which, with the Yew's background of dark green, makes a very striking picture.

It is impossible to estimate the number of blooms during the season, but the following measurements will give some idea of the dimensions of the tree. The Yew-tree has a circumference at its base of 4 feet 8 inches, and is 28 feet high. On the south side it is 25 feet long, on the east 17 feet, and on the north 22 feet.

The Rose has a circumference of 5 feet (?) at the base; and only a little more than a foot intervenes between the bole of the Yew and the stem of the Rose. At a few inches from the base the Rose throws up eleven great stems, with an average circumference of about 8 inches. These stems spread through the Yew in every direction, on the



FIG. 15.—THE WHITE ARGYLL ROSE, GROWING IN CANON NORMAN'S GARDEN, BERKHAMSTEAD.

might express their amours. It is often affirmed that this fruit constituted the Golden Apple of the Hesperides. One species was named *Chrysomelum*, which literally means Golden Apple, and Pliny describes it as having indentations and a colour inclining to gold. He makes also certain allusions to the other species of Quince known in his day, from which we may cull the most important facts. "The fruit called by us *Cotonea*, and by the Greeks *Cydonia*, was first introduced (he says) from the Isle of Crete. These fruits bend the branches with their weight, and so tend to impede the growth of the parent tree. The varieties are numerous." Next to the Golden Apple he puts "the one that is known as the Italian Quince, which is of a paler complexion, and has a most exquisite smell." Probably it was on this account that these fruits were placed "in the ante-chambers of great men, where they receive the visits of their courtiers." The peculiar odour which is offensive to some, is exceedingly grateful to others. Pliny adds, that the Quinces of Neapolis are also held in high esteem; while the smaller varieties have a more

its distribution seems, therefore, to correspond pretty generally with that of the Medlar. It is quite naturalised on the open hill-sides near Funchal, in Madeira, particularly across the valley to the south-west of the church. The "slender, tough, flexible, twig-like branches" are much used by the Portuguese as riding-switches. The fruit is "irregularly globose, or short and thick, more or less knobbed, of an uniform golden-yellow colour; austere, hard, and inedible, with a slight taste of garlic, but very fragrant, and making a delicious marmalade, which is in particular request among the Portuguese, especially as a remedy in colds and sore-throats." Turner tells us that in his day the juice of a raw Quince was regarded as a certain antidote against deadly poison. In folklore we find that it is a favourable sign if one dream of Quinces, as a speedy deliverance from sickness and other troubles is indicated thereby. The folk-lore of the fruit is, however, usually of an erotic character, and does not bulk largely among the Anglo-Saxon race.

As for its mode of growth, we learn that the

south side to a height of 22 feet, and then branching very freely, hang over in festoons about two-thirds of the way down on that side. The Rose clothes the east side, and it is here that it is most dense, and spreads itself over the whole length of the north position; not content with this, it covers all the nearest sides and top of a wire structure of three arches which is at the north-east corner. *W. Percival Westell.*

FORESTRY.

ROTATION IN FORESTRY.

(Continued from vol. xxvi, p. 439.)

A VERY general opinion exists among planters that rotation is as necessary in forestry as in agriculture. A good deal is, however, assumed in regard to farm and garden crops that is not borne out by the facts; but in the case of forest-trees it would almost seem that rotation is of little or no consequence. I am not here speaking so much of trees succeeding trees, but of the same species of trees following each other generation after generation—probably from pre-historic times in some cases. I had lately sent me, by one of the Jarrah timber companies in Western Australia, the late Mr. Ednie Brown's report of the forests there (in connection with the business of one firm), from which it would appear that the different varieties of the Eucalyptus must have grown on the same soil from a remote period of the world's history, and that the young seedlings still keep coming up in the greatest abundance where clearings have been made, while trees of all ages are found in the same tracts of forest. In fact, the Jarrah forests appear to be unlike natural dense forests elsewhere, inasmuch as the trees are comparatively thinly distributed, and not even-aged, an enormous extent of ground having to be ransacked by the owners of lots to get trees of the right dimensions, many small poles and trees being left. To supply a greater variety of useful timber, Mr. E. Brown proposed, had he lived, to introduce quite a number of our European Firs and hardwoods to Western Australia, the timber of these species being at present imported from Europe.

It is the same in the great timbered regions of Europe. In the Hartz Mountain region they have no traditions of anything but Beech and Spruce mainly; while on the sandy plains further south it has always been Scots Fir principally, the original soil having been long buried deeply by the humus that has accumulated from the fallen leaves, and resembling the black surface-mould in America where the Pine forests have been cleared. William Black, the novelist, describes in one of his books these gloomy, dark Pine forests, under which no vegetation is seen except the dark green moss, which keeps asserting itself above the constantly augmenting deposit of Pine leaves and cones that fall from the trees.

In the case of the Spruce Fir forests of Germany an attempt is made to clear the ground of the old stools before replanting with the same species, but it occurred to the writer that the clearance was only partial, numerous roots being unavoidably left in the soil after the stools were removed, digging or trenching being out of the question. In the Beech forests the stools are left to decay. The same course of reproduction has been going on for thousands of years in the old Scots Fir forests in Scotland—Scots Fir, Birch, or Heather, growing together or succeeding each other where Nature has had her own way. The Heather disappears under the Scots Fir, but reappears again when the Firs are cleared off, no matter how long the forest has existed. On one highland estate, about which there was trouble among the heirs, much fine Scotch timber was felled, the ground being left uncared for, and in a few years the Heather was knee-deep. Indeed, the common Heather may be regarded itself as a kind of timber crop that 'goes on for ever' on the same soil.

In England there are numbers of natural old Oak woods that have continued as long as any records exist, not only producing fresh generations of trees from seed, but crops of poles of good useful size from stools until the third and fourth generation. I have often found little families of Oak poles occupying a circle of ground that had once been occupied by the original stools long since decayed, leaving only the outer ring that held the groups together.

I am of opinion that it is a matter of little consequence how often we repeat the crop so long as trees only are produced, and coarse weeds and undergrowth are kept down. But once old woods become thin some usurper invades the soil, and the common Bracken is one of the worst. I know old and thin woods where, during the past thirty years, the Bracken has advanced over the ground in a square line—pushing on and on in front, killing underwood and all other growth in its progress, and never exhausting itself, but thriving on its own *débris* till you could cut the rhizomes out in solid blocks with a spade.

It appears to me that when a wood is kept with close cover the trees themselves provide more food, on the soil, than they consume. I certainly know plantations sixty years old, and some less, in which the leaf-mould is now so deep that one could shovel it off, and in this mould, and between it and the original poor soil nearly all the fibrous roots of the trees appear to be. A spade cannot be inserted anywhere on the surface without cutting into masses of roots. Originally the ground was a miserable cliff of rocks and stones, without much soil of any sort. This is the experience also of Continental foresters. Trees want but little else than a root-hold from the soil, and what they take up in the shape of food they more than put back again, and there is always the rain from heaven, and the original soil besides, to supply their quota. *J. Simpson.*

COLONIAL NOTES.

NOVA SCOTIA.

It is pleasing when one so constantly hears grumbles about the British climate, to find some part of it held up for admiration. The climate of Southern Nova Scotia is, says the *Canadian Horticulturist*, such as to make it a favourite resort in summer from the heat of New York and Boston. "The summer fogs are very constant. . . . This condition of things explains why it is that Strawberry-growing has lately been found so remunerative, and that Roses are grown to such perfection."

GARDENING UNDER GLASS.*

(Concluded from p. 85.)

WE have now considered the fundamental principles which underlie indoor gardening, namely, the construction of houses, temperatures, shading, ventilation, water, and soils. I propose to conclude this paper with a few observations on the—

PRESENT STYLE AND TASTE IN INDOOR GARDENING.

Commercial gardening differs from æsthetic gardening, in that the end in view of each is not the same. The nurseryman and market-gardener grow to sell, and all their arrangements are distinctly utilitarian. It is from them, however, that many valuable lessons in horticultural practice may be learnt. Their object is ever to produce the best and the most by the quickest and cheapest methods. They cover large areas of land with light, generally cheap, structures, designed however to catch all the sunlight and heat possible. The internal arrangements for

the accommodation of their plants are often, apparently, of the most make-shift character, but essentially perfect for the end in view. Much of the market-grower's produce is forced—that is, grown under conditions which, whilst favourable to rapid development, are generally more or less destructive. Both in the United States and in England, the progress made in this one department of horticulture within the last half of the century has been most rapid, and where one acre was covered with glass fifty years ago, twenty are covered now. The number of large establishments devoted to the cultivation of decorative plants in pots is another striking feature of modern commercial horticulture. These are managed on the most economical methods, but in the best of them one sees abundant evidence of wise forethought, careful planning, and a knowledge of the factors essential to success. I am certain that these methods, compared with those of the ordinary garden, are controlled by a greater knowledge of and attention to important details. Whilst nothing is wasted, at the same time everything essential is provided by the up-to-date market-grower and nurseryman. True art in indoor gardening, however, does not concern him. He manufactures material; he studies only the question of supply and demand.

I made the following observations a few months ago when noticing the new department in the winter-garden at Kew: hitherto, true art in the garden has been limited to gardening in the open air, but if the cultivation of ornamental plants under glass is to continue to find favour in this country, considerable reform of means will be necessary. The eternal red flower-pot, stages, exposed hot-water pipes, and the ugly formality in arrangement, which characterise most plant-houses, are tolerated only because we have not learnt to grow plants under glass as they are grown out-of-doors. A collection of alpine plants in pots would appeal to few tastes, whereas the same plants arranged in Nature's way among stones produce an effect that is pleasing to all. Hardy shrubs or trees grown in pots or tubs would not only be unsatisfactory to look at, and costly to keep, but they would not grow into character, however great the care bestowed upon them. Yet we continue to contort, ill-treat, and starve our indoor plants by confining their roots in pots, and setting them on stages where they are often as unhappy as they look. There are, however, evidences here and there of reform in this matter, and the results are, so far, so satisfactory that all who love glass-house gardening must follow sooner or later. These new structures at Kew are examples of what is meant; the plants being set out in beds, so that one walks among them with very different feelings from those experienced in the old-fashioned, big conservatory, where tub and pot, and a huddled arrangement prevail.

The tendency is to grow too many plants in a glass-house. In a botanic garden, the collector's spirit must predominate, but even here much more selection should be practised than is usual. In the private garden, however, the first aim should be a pleasing arrangement, and this can be obtained by abolishing the stage and flower-pot, and substituting beds of soil in which the plants can be permanently placed. The difference in the first cost between this and the pot-and-stage system is as three to one.

There is a belief among gardeners that bottom-heat would be necessary for tropical plants if grown in beds; but this is quite a

* From a Paper read at the Kew Mutual Improvement Society.

mistake, as may be seen in various tropical houses at Kew, where the plants are thriving in unheated borders. Some plants cannot be easily accommodated except when grown in flower-pot or basket; but these are comparatively few.

1st, that the plants cannot be removed to less conspicuous positions when leafless or otherwise unattractive; 2nd, when planted out they are apt to rush into a luxuriance of growth, and soon become too large for their positions. A well-groomed plant should be interesting at all

be commendable rather than otherwise. Even small houses can be made picturesque by the adoption of some such natural arrangement as that in the Nepenthes-house at Kew, for instance, where not only is the general effect pleasing, but the individual plants are far more attractive than they ever could be if grown in pots or pans.

The improvement in gardening art, so marked within the last twenty years, has not yet affected the indoor department. People of taste find more pleasure and interest in the rock-garden, the herbaceous border, the shrubbery, and arboretum than among the plants in the houses, and consequently indoor gardening receives less attention than formerly was the case. This is due largely to the inartistic arrangements which characterise the ordinary conservatory, stove, or Orchid-house. By making an effort to get rid of all that is ugly in our plant-houses, and by affording to the plants treatment more suitable to their requirements, we may probably induce more to take an interest in the houses than do now. We must get out of the old rut formed in the days of our grandfathers. I believe we have all the appliances to enable us to produce much better results than we do now, if we only study them and the plants we have to grow.

CLEMATIS PRINCESS OF WALES.

THIS, though one of the older varieties, is still one of the best, being, as stated in Moore and Jackman's *The Clematis*, an exceedingly fine Clematis, remarkable for its refinement, and the substance and richness of colouring of its flowers (fig. 16). It belongs to the lanuginosa series, flowering early, and having very large flowers, some 7 inches across, of a bluish-mauve colour, with a satiny surface. It was raised in Mr. Jackman's nursery at Woking.

THE WEEK'S WORK.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener, Stoke Edith Park, Hereford.

Morello Cherries.—As these bear on the wood made in the previous year, the method of training them is somewhat similar to that accorded the Peach. It follows, therefore, that the pruning needed is of the same nature as the Peach, with this difference, and that if branch-pruning is necessary it may be practised freely. I have never known harmful results to follow; but, on the contrary, much good, and old trees can be entirely rejuvenated by its adoption.

Spraying.—When training and nailing are completed, the trees should either be sprayed or washed with an insecticide while growth is still dormant. Spraying is the most economical method of applying insecticides, there being less waste of the insecticide. Nothing, I think, can surpass the caustic alkali solution, the use of which now is gaining ground in this country. Some are nervous about its use, but there need not be the slightest apprehension if the formula for making it be strictly adhered to, and the best of chemicals employed. It is made by taking 1 lb. each of caustic soda and crude potash (the latter can now be bought in a soluble form, 1 pint of which is equivalent to 1 lb. of the dry chemical), and place these in separate wooden buckets or tubs, pouring boiling water on them, and when dissolved mix both together, and dilute to 10 gallons. The person making this wash should be careful not to hold his head over the vessels when first pouring the water on the chemicals, as they boil violently, neither should he let any of the resulting liquid touch his hands. The solution should be applied while hot through a proper sprayer, fixed either on a syringe or at the end of a hose attached to a garden-engine. The latter is the best means for applying it where there are many trees, and a length of tube for reaching to the tops of walls and tall trees

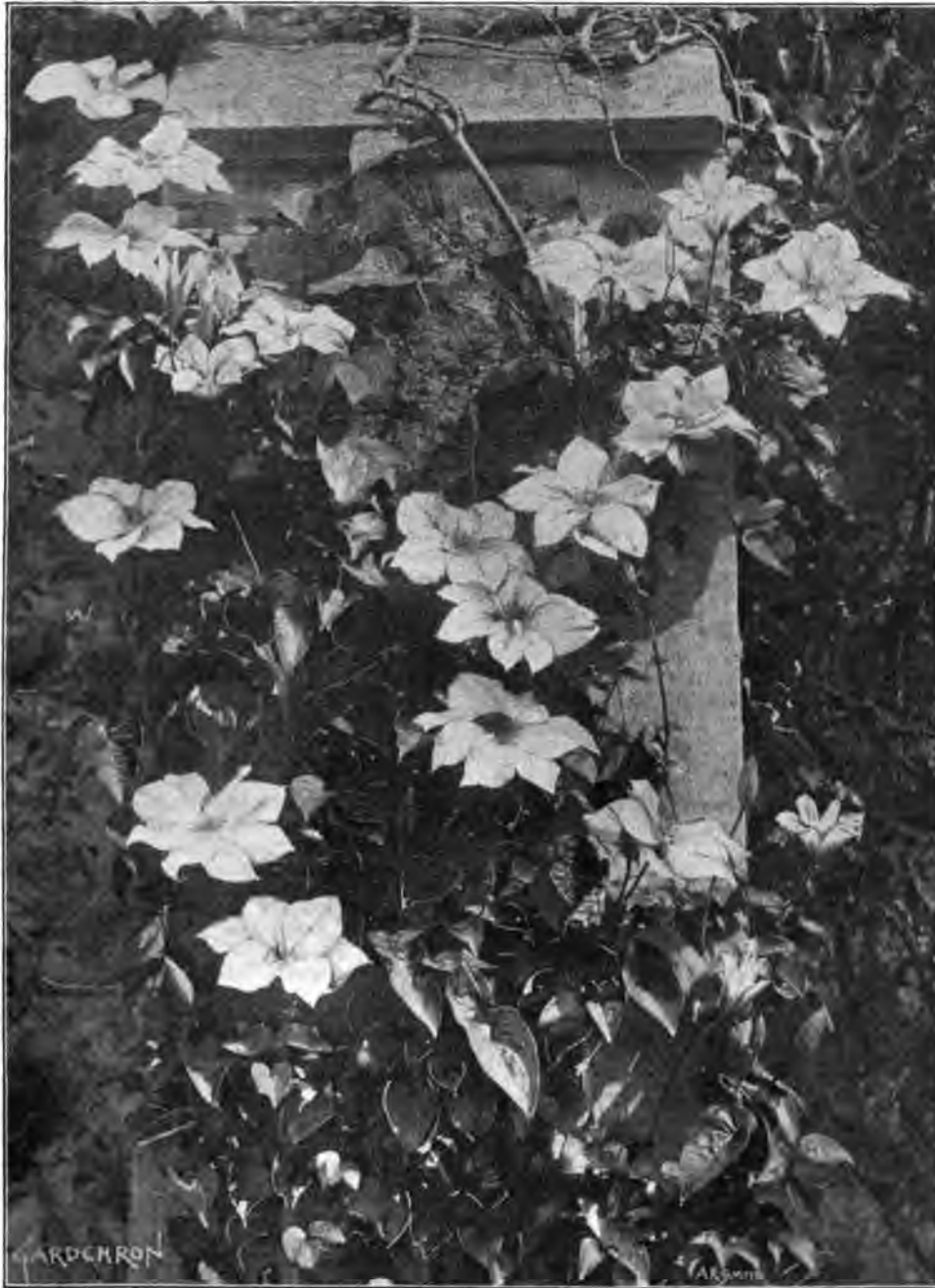


FIG. 16.—CLEMATIS PRINCESS OF WALES.

The ideal glass-house garden would be one where the plants are arranged and planted in the ground precisely as when grown in the open air, the structure over them being as light and unobtrusive as possible. Such houses would not be costly, and there is plenty of proof that they would afford far better conditions for the plants than the most carefully-designed house of the ordinary pattern.

The only possible objections to this planting-out or natural treatment or indoor plants are,

times. We do not want to dig up our Roses or other hardy shrubs because they are leafless and flowerless for some time.

With regard to the rapidity of growth, I would say that it is surely better to have a healthy, luxuriant specimen for two or three years than a miserable half-starved scrag of a plant for twenty. If a succession of plants be kept up in the propagating department, so that overgrown specimens may be rooted out and replaced, the changes thus brought about would

out in the open should also be provided. At the strength mentioned it may safely be used for Plums, Pears, Apples, and Cherries. For Apricots, Peaches, and Nectarines, dilute to 14 gals. Those who altogether object to its use may employ petroleum emulsion, or one of the many insecticides now sold, applying it according to the directions. The recipe for making petroleum emulsion having been given so often in these columns, it is unnecessary to repeat them.

Bush Apples and Pears.—After the wall-trees are pruned, these will be next to claim attention. If all summer growths on the spurs were stopped last August, the chief thing now to be done is to shorten back any pieces of wood then left of too great a length, and cut back leading shoots according to the available space. On bush trees which have reached full limit, this will mean cutting them back to three or four buds; and on others, where there is still room for extension, to one-third or one-half their length. The spurs on old trees, when they are grown too long, should be thinned in the manner advised for wall-trees. This will lead to a sacrifice of bloom buds, but the remainder will benefit by it, and the resulting produce will be all the finer. Pay particular attention to varieties which set fruit-buds on the tips of the young shoots, which should be left till next autumn, and then cut back. A few varieties prone to do this are Cornish Gilliflower, Gascoyne's Seedling, Yorkshire Beauty, Ecklinville, Tyler's Kernel, Pott's Seedling, &c. Take out boldly a few of the worst-placed or cross branches in trees that are too crowded. Trees, the shoots of which were not pinched in the summer, will stand in need of a considerable amount of pruning at this season. This winter-pruning may be avoided by stopping all growths, excepting the leaders, in the month of August. Young bushes should be so pruned, that only sufficient shoots are left to form the framework of the future tree, and no more, and all others should be spurred in. For bushes, a centre or leading branch is not necessary, and with some varieties, or such as are strong growers, it is not desirable. Each branch should have sufficient space, so that when fully developed, sunlight and air have free play among them, and each will thus in course of time become clothed with fruit-spurs from base to tip. With the aid of a few stakes and some tarred twine the branches may be drawn down, and made to assume their proper positions, if they do not do so naturally. In the course of two or three seasons these branches become rigid, and need no further attention. Espaliers and borders need precisely the same treatment with regard to cutting back to three buds all growths on spurs, and the thinning out of the latter when of undue length. Take care to leave shoots on young trees to extend them both laterally and vertically, and these should be cut back to firm and well-ripened wood.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen.

Cool *Odontoglossums*.—The species *O. crispum*, *O. Andersonianum*, *O. Ruckerianum*, *O. Wilckeanum*, *O. Pescatorei*, *O. Halli*, *O. luteo-purpureum*, *O. triumphans*, and some others, are, at this season, developing their pseudo-bulbs, and producing flower-spikes and fresh roots, and should in consequence not be allowed to get into a state of absolute dryness. Owing to the mildness of the winter, these plants have not been subjected to too much fire-heat with its evil effects, and their present appearance gives promise of a good show of bloom. The need of but little artificial heat calls for less damping-down and affording water to the plants. Any of these plants which were not repotted or surfaced may now receive attention, or as early as the conditions of growth permit. When repotted as they should be—just previous to roots appearing at the base of the new growth—rather more than ordinary care should be taken when affording water, the roots soon entering the new materials and requiring it in some quantity. Snails and slugs, which do much harm if allowed to exist, must be sought for nightly.

***Odontoglossum Rossi*.**—This plant is usually grown in hanging baskets, and its flower-scapes are now being formed, which occurs just previous to the pseudo-bulbs reaching full dimensions and maturity, consequently a liberal supply of water will still be needed by the plant.

Odontoglossum Cervantesii* and *Erstedii having completed the growth of their pseudo-bulbs should receive water at longer intervals of time, and be allowed to remain dry for several days.

***Odontoglossum Edwardsi*.**—This species when under cultivation does not seem to make its new growth at any regular season, different plants showing diverse stages of progress at about the same date. Their season of flowering is the spring, and any plants the flower-spikes of which are in course of development, should be allowed to remain dry for a few days before affording more water. Plants which are still growing, but have not formed new roots, should be noted, and when the latter seem prominent, repotting or surfacing performed as may seem required. After the removal of decayed material, place the plant in a clean Orchid-pot, rather more than three parts filled with drainage, working in amongst the roots and packing well up to the base, a compost consisting of lumpy peat two parts, and one part of fresh sphagnum-moss. When finished, the base of the growing part should stand slightly above the rim of the pot. Be rather cautious in affording water before the roots have entered the new material, but let enough be applied as will keep the sphagnum-moss alive. A good position for the plant is one where a few degrees more heat are obtainable than the cool-house affords.

***Odontoglossums cirrhosum* and *elegans*.**—These species require more warmth than *O. crispum*, as well as much drier conditions at this season; any excess of moisture at the root or in the air being apt to bring on the decay of the tips of the leaves, if not something worse.

Odontoglossum citrosium should occupy at this season a position in the intermediate house, being either staged or suspended near the glass, and afforded water only when shrivelling in the pseudo-bulbs becomes severe. With this plant, soon after the last made pseudo-bulbs attain to full size, new growth emerges from the base, out of which, when this has progressed an inch or more, the flower-spikes protrude, and until this occurs water is almost unnecessary.

Odontoglossums grande* and *Inleayi likewise require a very small quantity of water from this date until the end of the month of May; and a very suitable place for them is found on a shelf in the intermediate-house, where there is little risk of water reaching them when damping down. Woodlice injure the roots during the resting period, and must be kept under by traps of bits of Potato, Turnips, or Carrots, made with a cavity in them, placing these on the pots, and frequently examining them for the marauders.

THE FLOWER GARDEN.

By J. BENBOW, Gardener to the Earl of Ilchester, Abbotsbury Castle, Dorset.

Pruning Deciduous Flowering Trees and Shrubs.—Many of these invaluable adjuncts to the flower garden will now require to be pruned, thinned, &c., and a good deal of discretion will be needed in carrying out the several operations. With the large specimens all large decayed branches should be removed close up to the sound wood with a saw, and most of the useless branches in the inner part of the crown which, if left, usually die early and rob the outer branches of light, and as a consequence vigour. Misplaced branches should be cut back to the lowermost fork or to the stem, as the case may be. All large wounds should be dressed with Stockholm-tar or slate-coloured paint. At this season Weigelas, Deutzias, Spiræas, Philadelphuses, Ribes, Forsythias, Lilacs, and others, which flower on the last year's wood, should have the coarse, flowerless shoots removed, and the weaker ones thinned in numbers. The chief pruning of such species should take place towards the end of the flowering season of each.

Roses.—Now is the season, weather permitting, for the formation of new Rose gardens, stations, beds, &c., the renovation of old beds and borders, and the digging up of old cankered and worn-out plants. In making a new rosary the position should be such that it is fully exposed to sunshine during the better part of the day, and does not possess many shady trees or large bushes to overshadow the beds. Failing these conditions, the shoots of the Roses will be immature, and flowers few and poor in quality. Low-lying and damp situations should be equally avoided for similar reasons; a

drier level, even if colder, is preferable, as by natural or artificial drainage it can be rendered warm. Assuming that the site has some natural or artificial protection, at a moderate distance from the beds on the north and east sides, and the roots of trees and shrubs have little chance of access to the Rose-beds, favourable results may be anticipated. The various Lord Penzance Briars, Gloire de Dijon, Souvenir de Madame Metral, climbing Turner's Rambler, Rosa Polyantha grandiflora, Reine Olga de Wurtemberg, Souvenir de la Malmaison, and other sturdy nearly evergreen Roses may be readily utilised as shelters, hedges, or wind guards, and they give added interest to a Rose garden.

Soils, and the Preparation of the Beds.—Provided the ground has not been in recent years under cultivation, it should be bastard-trenched, especially if the sub-soil at 2 or 3 feet rests on gravel or a porous material, keeping the best or top soil on the surface, and mixing well-decayed manure and crushed bones with the whole during the operation. Heavy loams are best suited for Roses, especially for grafted Hybrid Perpetuals and Climbing Roses, which are usually worked on the Briar stock. For Teas, and hybrids of them, lighter soils are to be preferred for such as are worked on the Manetti, or which are on their own roots. If clay is met with, it should be cleared out 3 feet deep, rubble drains laid to carry off the water to a main drain, the bottom of the excavated portion being covered with 10 inches of brick-rubble. The beds should then be filled with a compost previously obtained from pasture land, which would be less retentive in character.

Planting.—The beds should be allowed to settle before this operation is commenced, and a dry day chosen for digging out the holes. These should be 3 feet apart, and large enough to allow of the roots being laid out at full length. All broken or badly bruised roots, should be removed with a knife; and all grafted or budded plants have the scion, or the point of union of stock and graft or bud buried 2 inches below the surface. Plant carefully, and make each plant firm in the ground. The planting completed, the beds will be raised a little above the surrounding level. Bracken or straw should be twisted about each plant, never using rank stable-dung at this season; the decayed manure used in the digging being sufficient at this season. The standard Roses and the climbing varieties should be secured to stakes, &c.

Lawns and Grass Borders.—After the copious rains, rolling and some sweeping when the surface is dry will be required. Daisies, Plantains, and noxious weeds will now be easily extracted with a spud or piece of hard wood shaped like a budding-knife handle. For destroying worm-casts use a hurdle dressed out neatly and tightly with Thorn-branches on the principle of an enlarged "Scotch broom." Such a light iron hurdle may now be drawn regularly over the lawns, levelling the worm-casts, and also renovating the grass by destroying moss. After the operation use the roller.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Slugs, snails, and grubs are a great nuisance, especially during warm showery weather in spring. They harbour in ground of a damp and tenacious nature, and in crevices at the base of garden walls, and may easily be destroyed by sprinkling some gas-lime over the surface of the soil, especially between such plants as Broccoli and other late spring vegetables. Gas-lime that has been exposed to the air for a considerable time is the safest to use, and if this be pounded up and sprinkled in quantity sufficient to cover the surface it will soon be washed into the soil by the rain, and the grubs, and the eggs of the slugs destroyed. When the soil is hollow or parted from the base of the walls, lime may be put in quantity, as it will not in any way harm the roots of the trees that may be growing against them. Where the soil is of a lighter nature a liberal amount of salt may be used with the lime, and this is best put on ground that has been recently dug, when it will not only destroy slugs, but act as a stimulant to the future crops.

Forcing Asparagus.—Those who have pits heated with hot water will have no difficulty in forcing this vegetable, providing the return-pipes pass at the bottom of the pit, and boards are arranged

firmly on supports to allow about 2 feet of manure being placed upon them. A regular temperature may thus be kept, and as growth proceeds a gradual increase of heat afforded. Over the manure spread some soil of a light nature to the depth of 4 inches, and as soon as this has been warmed to a temperature of 60°, strong roots of about three years' growth should be planted therein moderately closely. Cover the crowns with about 6 inches of leaf-mould, and sprinkle the surface with water through a fine-rosed watering-pot so as to settle the mould. The pit should then be kept close till the growths commence to push, when the heat may be increased to 70°, admitting air at the same time which will improve both the colour and flavour of the heads. In gardens where there is not the convenience of a heating-apparatus, a good depth of litter and manure should be spread evenly in a cold frame up to within 12 inches of the glass, and made tolerably firm. This may then in a few days' time be covered with 4 inches of mould, and when the temperature is about 80° lay the roots upon this, and add a little fresh soil for the first few days, so that the increase in the temperature may be very gradual. The frame should be covered with mats each night, and during cold days, in order to keep the beds at an even temperature.

Carrots.—Autumn-sown Carrots of the Shorthorn kind will keep fresh and tender in the ground till they commence to grow, when they split, and become hard in the centres. It is therefore necessary to keep up a supply of fresh roots, that seed be sown now in pits. The beds should be prepared in the same manner as advised for Asparagus, with the addition of ordinary garden-soil. Sow the seeds moderately thick, in rows 6 inches apart, thinning the plants to an extent that will allow the roots to become of a moderate size. Early Nantes, French Horn, and Parisian will be found reliable varieties for this purpose.

Radishes may be forced successfully, if treated in the same manner as Carrots; but an addition of some burnt refuse should be the staple, and the surface of the bed should be brought near to the glass. Make the soil firm, and do not sow the seeds too thickly together, as they germinate freely. Cover them slightly with fine mould. French Breakfast and Wood's Early Frame are varieties that force well, and if some Early Scarlet and White Turnip-rooted be mixed when sowing, the supply will be prolonged.

Broad Beans.—There is very little, if any, advantage to be gained by sowing seeds of these in November, as those raised in boxes under glass, and afterwards planted out, pod as quickly, and are more regular in growth. The boxes selected for this purpose should be about 3 feet long, 1 foot broad, and 4 inches deep, and if these be made so that the nails may be easily drawn from one side the plants may be taken out without damage to the roots. Place some fibrous turf at the bottom, and half-fill the boxes with rather rough loam and leaf-mould. Plant the seeds about 2 inches apart, in four rows; keep the soil moist, and when the seeds have germinated they may be gradually exposed to the air, and duly hardened off for planting out. Beck's Early Green is a good dwarf, early sort, followed quickly by Early Mazagan and Green Windsor.

FRUITS UNDER GLASS.

By J. ROBERTS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Vines.—The present is a good time to start a Muscat-house for an early autumn supply, as by the time the Vines get into flower the weather will be favourable for securing a good set of fruit. Examine the border, and if found dry, give a watering with a weak solution of nitrate of soda, to assist in the early production of new roots. The earlier-started houses of Hamburgs will now require regular attention in disbudding, stopping, &c. The first operation should be done in an early stage of growth, but not before it is possible to detect which are the most perfect bunches. Remove all but one from each spur, and the spurs should not be closer than 2 feet 6 inches alternately on each side of the Vine. This distance will allow for a full development of the finest foliage; and as good finish and high quality in the fruit are dependent on good stout foliage, maintained in a healthy condition to the end of the season, this is a vital point in good Grape culture, and this initial stage of development is the most important in forcing the Vine. The conditions necessary to secure a fine

spread of healthy foliage, capable of resisting insect attacks, and not crumbling into dead tissue, on the first hot day in June, are a healthy root-run, in a well-made border, kept in a steady, moist condition. Another point to aim at is, to set up a quick root-action. This should commence by the time the Vines have made 3 or 4 inches of growth. Until this occurs, anything like rapid forcing should be avoided. A steady temperature, ranging from 55° to 63° will secure short-jointed wood and foliage of good substance. Avoid too much atmospheric moisture, except on sunny days, and keep a crack of air on the top-ventilators during all weathers. Stop the shoots the second or third leaf beyond the bunch, and after the fruit is set, the shoot may again be extended a few more leaves with benefit to the root-action of the Vine, and the quality of the fruit, and also to the strengthening of the wood for next year's pruning. All late fruit now hanging should be cut and bottled, and kept in a dry room at a temperature of 50°. After removing the fruit, the house must be kept cool for a few days before pruning. After this operation the house and Vines must be carefully cleansed, but avoid removing the old bark from the Vines, except where mealy-bug has to be contended with. Any renovations or additions to the borders should be attended to without delay, so that any mutilation of the roots may have time to heal. Throw the house open, except during frosty weather, for the next six weeks.

Pines.—The active season with these will soon commence, and a slight rise of temperature, and more liberal supply of moisture at the root and in the atmosphere may be given with advantage. Plants likely to throw up fruit during the spring may be top dressed at once. Remove a few of the old leaves from the base of the plant and the old surface soil, and pack some good light fibry loam and bone-meal, with the addition of a little soot, firmly around the collars of the plant. A temperature of 70° by night and 75° by day, with a bottom heat of 80°, will suit the fruiting stock.

Succession Plants.—For the general potting of the young stock next month, the soil may be prepared at once by chopping up the necessary quantity of tough fibry-loam, removing the finer particles from it with a dust-sieve. To this may be added some soot and bone-meal, and the whole spread out in a dry shed for a few days, when it may be damped with a strong solution of sulphate of ammonia, afterwards throwing it into a rounded heap and covering with old mats until the soil is required for use. A bottom heat of 70° and top heat of 70° by day, and 60° to 65°, will keep this sturdy for the present.

PLANTS UNDER GLASS.

By T. EDWARDS, Plant Foreman, Royal Gardens, Frogmore.

Bougardias.—Plants whose flowering is over should be afforded a period of rest, and only sufficient water to prevent flagging. About the middle of February prune to within about 2 inches of the older wood, and when growth starts, shake out and repot. If flowers are wanted in quantity, it is advisable to plant them out at the end of May on a warm border, stopping the shoots from time to time. Pay close attention to their needs in regard to water at the root; lift carefully, and pot early in the month of September. For pot culture, young plants are the best, and cuttings should be taken off with a "heel" when about 1½ inch in length, and rooted in a propagating frame in strong heat. After potting them off, remove to cooler quarters.

Ferns.—Those which have been cut over may now be divided and potted, using clean pots and an open compost, in which there is plenty of leaf-mould and sand. Lomarias, Blechnums, and some of the stronger-growing Adiantums and Pteris, require a more loamy soil. For filling small vases, &c., it is best to raise Ferns from spores, sown in autumn. Some care is required in pricking off, otherwise moss will smother the young plants. Potted in 60's, they make pretty plants, which are better furnished with fronds than old divided stools.

Seed-sowing.—Seeds of Cinerarias for autumn and winter flowering should now be sown in pans, and placed in a pit having a temperature of about 50°. Germination takes place in about ten days, when the pans should be raised as near the glass as possible, air being admitted freely, for if kept close

the seedlings soon spoil. When large enough to handle, pot off in 60's, and afford them air night and day. Primulas require more care, and germinate best in a temperature of 60° to 65°. Let the seed-pans be prepared in the usual manner, and fill to within ½ inch from the top with a compost of loam, leaf-mould (sifted fine), and peat-dust (from which fibre has been picked for Orchids, &c.), with plenty of silver-sand, leaving the surface perfectly level. Afford water with a fine rose-can, and wait three or four hours before sowing the seeds. When sown, lightly press the seeds into the soil, and cover them very slightly with some of the compost sifted finely; afford a light watering, and cover the pans with panes of glass, no more water being applied until the seedlings come up, when the pans should be placed on a shelf near the glass. Tilt the glass, and gradually harden off. These remarks apply also to Begonias, Gloxinias, Lobelias, and various small seeds, which in inexperienced hands frequently fail to germinate, and the seedsman is blamed for supplying "old seed." I am led to mention the above details "for young men," as I have been asked by seedsmen on two or three occasions what percentage of Primula-seeds had germinated, complaints having been received that none, or very few, of some stock had come up.

Grevillea robusta makes nice decorative plants in one season. Place the seeds edgewise, and start in stove-heat.

Sweet Peas may appear out of place among "plants under glass," but now that there are so many lovely varieties they are well worth growing in pots, and the plant can be obtained in flower six weeks before those sown or planted outside. Sow the seeds in 48's, and when the pots are filled with roots, shift into 24's, using good, rich soil, potting firmly, and growing on in cold pits. If the sticks are neatly put in they will be clothed from top to bottom, and scarcely seen when the plants are in flower. Early in May stand the plants outside, under a south wall. For corridors or grouping they are very suitable subjects to employ. For planting out sow now in 60's, and plant out in drills at the end of March, according to the weather.

Cannas, &c., should now be divided and potted, starting them in an early vinery or Peach-house; and *Lilium Harrisii*, and others, top-dressed with rich soil, examining the points of the stems for green-fly.

Various.—Hyacinths, Narcissus, &c., may be placed in the forcing-house for succession, and the plants in the conservatory re-arranged; Gloxinias and tuberous rooted Begonias may be shaken out of the old soil and re-potted. *Gloriosa superba* requires liberal pot-room, and tubers may be started forthwith in strong heat.

Seeds of the East Lothian and Princess Alice Stocks should be sown at once, the latter being the best white Stock grown. Plants from this sowing will flower in the months of June and July. When two true leaves are made, the seedling should be potted-off singly in 60's, taking care not to injure the tip of the root. They may be planted out at the end of April in good soil. Veitch's Perpetual is a very fine white Stock, of good branching habit, and one that continues to bloom longer than most varieties.

Miscellaneous Seeds.—*Clerodendron fallax* seeds should be sown early in stove-heat; the seedlings grow strongly, and make noble plants for conservatory-work during the autumn. *Rhodanthus Manglesii*, &c., may be sown thinly in seed-pans or boxes, the young plants being picked off, nine or ten, in 48's. *Torenia Fournieri*, a tender annual, should be treated similarly. Sow Mignonette in 48's filled with loamy soil in which lime-rubble is mixed, and thin the plants early; sow also *Calliopais*, *Phlox Drummondii*, and *Godetias*, in variety. Some of the latter are very brilliant, and they may be raised in quantity in cold pits with very little trouble; for succession, sow in quantity in pots as may be required. The seeds of most kinds of plants vegetate better when kept in the dark.

PUBLICATIONS RECEIVED.—From the United States Department of Agriculture, Division of Entomology: *Preliminary Report on the Insect Enemies of Forests in the North-West*. An account of the results gained from a reconnaissance trip made in the spring and early summer of 1899. Prepared under the direction of the entomologist by A. D. Hopkins Ph.D.—*Bullettino della R. Società Toscana di Orticultura* Dicembre 1899

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

APPOINTMENTS FOR THE ENSUING WEEK.

WEDNESDAY JAN. 31 { Annual meeting of the Royal
Scottish Arboricultural Society.
FRIDAY, FEB. 2 { Nursery and Seed Trade Association,
General Meeting at 30,
Wood Street, Cheapside, at
4.30 P.M.

SALES.

MONDAY, JAN. 20.—Roses, Ornamental Plants, Hardy Bulbs, &c., at Protheroe & Morris' Rooms.
WEDNESDAY, JAN. 31.—Japanese Lilies, Greenhouse Plants, Roses, Lily of the Valley, Spireas, Tuberoses, &c., at Protheroe & Morris' Rooms.
FRIDAY, FEB. 2.—Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—38°9'.

ACTUAL TEMPERATURES:—

LONDON.—January 24 (6 P.M.): Max. 54°; Min. 44°.
PROVINCES.—January 24 (6 P.M.): Max. 50°, Cromer; Min. 41°, Peterhead.

Rural Education.

THERE has recently been a demand for a system of education in our rural districts which shall not tend to alienate the children from country pursuits. In this connection it may be of interest to turn to the latest circular issued by the United States Department of Agriculture on *A German common School with a Garden*. While discussing, as is customary, what has been carried out in other countries, it might not be amiss to look for once at what has been done to encourage a love of nature in our own villages.

In the Rhine Province, where the school that Mr. C. B. SMITH describes, is situated, the law has ordained, since 1895, that during the last two years of the course, two hours' instruction each week shall be given in fruit-culture, gardening, and general farming. The majority of teachers in German schools come from the cities, and hence the greater part of the instruction in the subjects we are considering is theoretical. Here and there some especially active and wideawake teacher sees in the garden, that is usually used as a source of income and pleasure to himself, a means of practical instruction and a field for observation. To quote Mr. SMITH's words:—

"The teacher's Nature-study charts are supplemented with real flowers and fruits, grown in his own garden, and with insects, birds, bees, and low forms of life that make their homes in his hedge-row, or feed upon his choicest plants. Pupils working among these flowers, pruning trees or gathering fruit from Vines planted and tilled by themselves, may acquire an interest in Nature and husbandry which will remain with them throughout their after-life. Certainly they will acquire a practical knowledge of the ways in which fruits, flowers, and garden vegetables are planted and cared for, which will be of value to them in their future work as farmers or the owners of homes and gardens."

The particular school is at Alfter, and has 400 pupils and six teachers; the principal has taught there for thirty-two years, making horticulture one of his subjects from the first. He is thus in a position to gauge of the effect that the horticultural instruction he has imparted had upon the community at large. So far as vegetable gar-

dening goes, it is not easy to judge what influence the school has had in securing the high state of perfection that at present prevails, but the varieties of plants grown were introduced by the principal. The improvements in flower and fruit culture, however, are claimed as direct results of the school work.

The suggestions as regards the training are sent in outline to the principals of the schools by the provincial government, but the details are left to the teachers, so that the needs of their districts may be supplied. Space will not allow of us giving the draft syllabus in full, but some idea of it may be gained from the following:—

FIRST YEAR.

April and May.—Anatomy of plants, roots, and soil food.

June.—The construction and function of leaves and flowers.

July.—The soil and its improvement.

August.—Fruit culture, nursery work, grafting.

September.—Fruit utilisation (this is specially for girls).

October and November.—Fruit-tree management.

December.—Enemies of fruit-trees.

January.—Insect pests.

February.—Materials used in pottery and brick-making; table-salt.

March.—Common metals, coins.

SECOND YEAR.

April and May.—Garden work; vegetables.

June.—Vegetables continued.

July.—Field crops.

August.—Crop rotation, manuring, weeds.

September.—Injurious and useful insects and mammals.

October and November.—Harmful birds.

December.—Domestic animals.

January, February, March.—Physiology of man.

In the Alfter school, whose principal gained his own interest in rural pursuits from an academic teacher who was thoroughly in love with horticulture, the work of cultivating the half-acre of garden is done by the boys of the sixth, seventh, and eighth grades; twenty at a time carrying it out under the direction of the principal. For instance, the actual work of pruning is done by the children, but nothing may be removed until the pupil has shown the necessity and extent of the pruning suggested. The garden is intensively worked, and made a source of revenue; the same soil being used for two or three crops, and the produce sold.

The children enjoy the garden work. They collect seedlings from the woods, and graft and bud them at home, so that they soon have their own fruit-trees, and nearly all have flower-gardens or potted plants belonging to them.

The obvious remark upon all this is, that what is successful on the continent would most likely be so in this country; but has nothing of the kind been going on here, or, at least, been possible? The answer to this question is, that much has been done, and the possibilities for more still exist, though the speakers who cry most for education in rural pursuits would appear to assume the contrary. The reason may be that the direct teaching of the science of life that has been done of late years under the Technical Instruction Act and the Science and Art Department, has not affected the children of the labouring classes so much as those of the farmers and middle classes. The explanation of the desire that the former shall receive such education as shall cause them to retain an interest in the country, is that thereby the "labourer may be kept upon the land." Whether the hoped-for result would follow,

does not concern us here; it is only our aim to show that children in our village elementary schools have been interested in Nature by their teachers.

At least one County Council has been training numbers of elementary school-masters and mistresses in a way that has made something of enthusiasts of them, and has led them to give every scrap of information about the every-day work of Nature that they can to their pupils. There may be no class on botany or horticulture recognised at a school, for instance, but the object-lessons have been given on "a pot of Geraniums" or a "Currant-cutting."

There is, however, the point to consider which Mr. SMITH says the Germans are becoming aware of, and this is, that the success of any scheme depends entirely upon the individual teacher. What a few may accomplish for love, the mass cannot necessarily carry out to order. The task of the agricultural educationalist is to find the proper men for the work.

We have alluded to the Science and Art Department, and there exists its alternative syllabus of elementary biology, devised a year or two back by Professor MIALL, a very good course for intelligent country children. The writer has already called attention to the suitability of such an one for our grammar-schools; * but at the same time he must point out from personal experience that the methods required to ensure its success are very different from those usually in vogue in schools. The classes must be small; there must be plenty of material to handle; the discipline must be exceptional, for the temptations to play are increased; country rambles, systematically conducted, must be part of the curriculum; and lastly, the teacher must have his subject absolutely at his fingers' ends, and bring forward as many points as possible which will appeal to the instincts of his pupils.

[Since the foregoing was written, the question of teaching Natural History in schools has been considered by the Conference of Science Teachers, convened by the London Technical Education Board. The importance of several of the points touched upon, especially in our last paragraph, were emphasized by Prof. Miall and other speakers.]

H.H. THE DUKE OF TECK died on Sunday night at White Lodge, Richmond Park. The Duke, who was in his sixty-second year, was married in 1866 to the Princess MARY OF CAMBRIDGE, who died in 1897.

MR. CHARLES WOOD.—In our last issue we briefly alluded to the death of one of the oldest and most respected of our nurserymen. After leaving school in May, 1830, he went to the Clapton nurseries, then in possession of Mr. JOHN MACKAY. Here he remained four months, and then returned to the Woodlands, Maresfield, where he has been in harness ever since. In a letter written in October, 1897, he describes himself as in his eighty-second year, but "foud of office work."

MR. A. WARD, who has been gardener to the late Lady EMILY FOLEY, at Stoke Edith Park, near Hereford, informs us that he will now need to seek a new engagement. Mr. WARD is now writing our Hardy Fruit Garden Calendar, and his management of the gardens at Stoke Edith has been exemplary.

JOHN RUSKIN.—The decease of this great naturalist, whose ardent love of simple Nature has effected so considerable an influence upon the present generation, is a great loss. His tastes were simple and pure, and his writings tended wholly to the elevation of the mind. We have received appreciative references to Mr. RUSKIN's work, and regret that this week we are unable to use them.

* "Biology as a Branch of Education," *Westminster Review*, December, 1899.

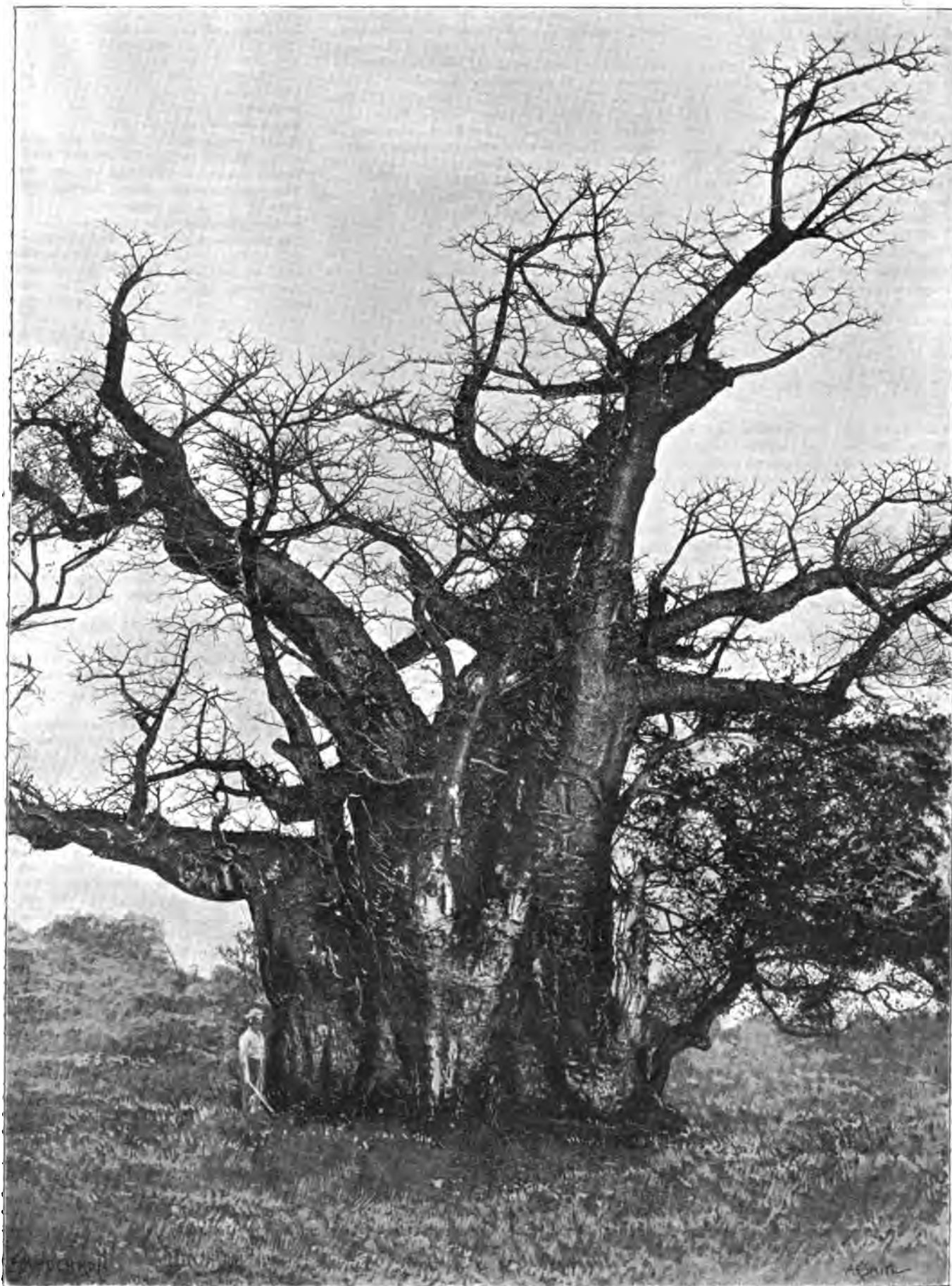


FIG. 17.—*ADANSONIA DIGITATA* GROWING AT KLEIN LETABE, TRANSVAAL, S. LAT. 24°. (SEE P. 53.)

ADANSONIA DIGITATA.—This genus, which belongs to Malvaceæ, contains a few of the veritable vegetable giants of the earth, rivalling the mammoth trees of California and Australia. The tree reaches 70 feet, but the height is not in anything like proportion to the size of the trunk, which sometimes measures 30 feet in diameter. The tree soon divides into branches, which attain to an immense size, forming dense masses, with deciduous leaves resembling those of the Horse-Chestnut. The flowers are white, solitary, and pendent on long pedicels. The specimen which we figure on p. 57, is growing at Klein Letabæ, Transvaal, in S. lat. 24°. It is known as the Baobab and Cream of Tartar tree. The photograph from which our figure is reproduced was kindly furnished by Mr. ADLAM, the superintendent of the Public Park, Johannesburg.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held in the lecture-hall of the Institution on Monday, Jan. 29, 1900, when the adjourned discussion on the paper read by Mr. JOHN NISBET (Colonial Fellow), entitled "Forest Management, with Suggestions for the Economic Treatment of Woodlands in the British Isles," will be resumed. The chair will be taken at 8 o'clock.

LINNEAN SOCIETY.—On the occasion of the evening meeting, to be held on Thursday, February 1, at 8 P.M., the following papers will be read:—I. "On Botanic Nomenclature," by Mr. C. B. CLARKE, M.A., F.R.S., &c. II. "On the Zoological Results of an Expedition to Mt. Roraima in British Guiana, undertaken by Messrs. F. V. McCONNELL and J. J. QUELCH," by Professor E. RAY LANKESTER, D.C.L., F.R.S., &c.

THE AGRICULTURAL DEPARTMENT IN ABERDEEN UNIVERSITY.—At a recent meeting of the Sub-committee on Experiments, there was read a letter from the Cruickshank Botanic Garden Trust, intimating the terms on which the Agricultural Department of the University might obtain the use of a portion of the new Botanic Garden at Old Aberdeen. The portion of ground consists of about half-an-acre of good soil, forming the south-east corner of the garden, and is very suitable for agricultural purposes. Last season it was cleaned and cropped with Potatoes. It appeared to the sub-committee that the whole of this ground might be advantageously used for teaching purposes, and it was resolved to hold the next meeting on the spot with a view to approving of a scheme of cropping which might be instructive to the students of the department, and also to some extent to others engaged or interested in practical agriculture.

THE AHLBOTTN'S TREE PROTECTIVE COMPOSITION.—We are enabled to inform those of our correspondents who desire to purchase this effective dressing against hares, cattle, deer, &c., that it may be obtained of NATHANIEL AHLBOTTN, 21, St. Andrew Square, Edinburgh.

ABERDEEN NATURAL HISTORY AND SCIENTIFIC SOCIETY.—Under the auspices of this Society a lecture on "Bacteria in the Service of Higher Plants," was delivered on Friday night, 19th inst., in Aberdeen University by Mr. JAMES HENDRICK, B.Sc., lecturer on agricultural chemistry in the University. The lecture was an exceedingly interesting one, and was illustrated by diagrams, experiments, &c. The lecturer traced and dealt at length with the various experiments which had been made since the beginning of the century to prove that bacteria was of service to the higher plants. At the close, Mr. FERGUSON, LL.D., of Kinmudry, moved a hearty vote of thanks, in the course of which he complimented Mr. HENDRICK on his admirable lecture. Dr. JAMES W. H. TRAIL, Professor of Botany in Aberdeen University, occupied the Chair.

ELECTION OF THE OFFICIAL STAFF OF THE FRENCH HORTICULTURAL SOCIETY.—As the result of elections recently held by the Society, the

following members now constitute the official staff, and the administrative council of the Société Nationale d'Horticulture de France: President, M. Viger; First Vice-President, M. Albert Truffaut; Vice-Presidents, MM. Ch. Baltet, Delavier, Lévêque, Vitry; General Secretary, M. Chatenay; Assistant General Secretary, M. E. Bergmann; Secretaries, MM. Sallier, Dauthenay, Ferd. Cayeux, Ph. de Vilmorin; Treasurer, M. Paul Lebœuf; Assistant Treasurer, M. Marcel; Librarian, M. Gibault; Assistant Librarian, M. Harriot. The following are the members on the council: MM. Bernard, Martinet, Grenthe, Quénat, Chemin, Thiébaud, Croux, Cappe fils, H. Defreane, Vacherot, Ausseur-Sertier, Nanot, Mussat, Maurice de Vilmorin, Ozanne, and Villard.

ROSES FOR A PENNY-IN-THE-SLOT.—M. ALBERT MAUMENÉ describes, in a recent number of *La Nature*, a new variety of the automatic distributing machine, from which Roses can be obtained. The idea originated in Germany, and the falling of ten pfennige ensures the movement of a Rose from its position behind a glass screen to a place where it can be reached and drawn out by the purchaser. The machine is stocked every day or every alternate day with fresh flowers placed on view in little tubes of water, whence they move, as said above, to a place where they can be obtained by those desiring them.

A ROMANCE OF PRIMULA OBSCURICA.—The name and nature of *Primula obconica* are utilised in a short tale in our contemporary, *The Lady's Realm*. One of the characters in the story, after contact with the plant, suffers from a "hideous eruption" that is happily but temporary in its effects. "*Primula obconica* possesses in the green cup from which the petals rise, a small and highly poisonous hair. The slightest touch of this on the hands or other surface of the skin will produce on some persons violent humours, and swelling and symptoms which otherwise resemble both erysipelas and eczema." The authoress has successfully consulted horticultural authorities for her facts, and in the guise of fiction may impart a useful caution as to the dangers of too freely handling this *Primula*, to readers not likely to learn such matters from original sources.

PALM-HOUSE IN ST. PETERSBURG.—The *Garten Flora* has an illustration of the new Palm-house erected in the St. Petersburg Botanic Garden. It is a hexagonal structure of iron and glass, 73 feet in height. It is anticipated that the noble Palms which suffered in their old home will speedily recover in their new abode.

BOTANY TEACHING.—Professor E. C. MIAL, F.R.S., recently opened a discussion at a public meeting at South Kensington on "The Teaching of Botany." He said that chemistry and physics were now making rapid strides, but the spread of botany was not what it ought to be. Botany should be encouraged because it was essential to scientific agriculture; but as taught at the present time it was no more than book-learning. What was wanted was practical and experimental teaching. Consideration ought to be given to the young who were growing up to live on the farm or in the garden, and who were practically ignorant of the processes of raising crops and rearing stock. The teaching of botany should be taken in the school course, but under the present system there were too many subjects crowded into it, with the result that nothing of any value was acquired. One of the aims should be to give a practical experimental demonstration of the way in which plants discharged the functions of nutrition and reproduction.

TOBACCO IN CANADA.—The Agricultural Department of Ontario has got well ahead with its report for the past year—a notable comparison with the collected report for 1898. Concerning Tobacco culture we find there has been a great falling off; it appears to have been successful where grown. The yield of the "weed" is esti-

mated at 2,241,562 lb., from 2,206 acres—or 1,016 lb. per acre. Of this amount the county of Essex produced 1,636,760 lb., from 1,411 acres. The production in 1898 was 10,560,590 lb., from 7,871 acres, of which the county noted contributed 7,095,970 lb., from 5,080 acres.

FRUITS IN ONTARIO.—From the just-issued Departmental Report for 1899, relating to Ontario, we learn that in most fruit-producing sections there was a considerable surplus of fruit over local demand—especially of Apples, and many heavy shipments are noted. Though the crop, on the whole, was much below the average, the quality was very variable. Pears, Plums, and Grapes were in excess of home requirements. Owing to the wholesale destruction of Peach-trees in the previous winter, the crop of this fruit was very limited. Of small fruits there was an abundance, as well as a plentiful growth of the wild varieties in the back townships. It is noted that the yield of Apples is placed at 19,126,439 bushels, or an average of 3.02 bushels per tree of bearing age. The bearing trees number 6,324,842, and the young trees 3,445,135.

"LE CHRYSANTHEME."—This journal, which is the official publication of the French National Chrysanthemum Society, is an unusually bulky one this month, and contains what may be regarded as a comprehensive account of the Chrysanthemum work carried on in France during the past season. Reports of shows in Paris, Orleans, Limoges, Ribérac, Montauban, Rouen, are given in addition to the ordinary matter concerning the Society. By far the larger portion of the number is taken up with an account of the Lyons show. This includes the full text of the speeches and papers read at the Conference, &c. The balance sheet shows that the Society starts the new year with over £80 in hand.

CHEAP TRANSIT OF FRUIT.—What was originally an experiment—the sending of small parcels of fruit by rail at a cheap rate—has proved a great success. An inquiry of the Superintendent of the Great Eastern Railway (Mr. DREYER), has elicited the information that the farm-produce traffic still continues to increase, and during 1899 the company carried 147,500 packages, against 135,860 during 1898—an increase of 11,640. Surely a most encouraging result.

PRESENTATION TO MR. WILLIAM BALCHIN, JUNR.—Advantage was taken of the recent meeting of the Brighton and Sussex Horticultural Society to present to Mr. W. BALCHIN, Junr., an illuminated address, on his retirement from the post of chairman of the committee, which he has now vacated solely on account of the pressure of business. The address bore testimony to valuable services rendered to the Society during the ten years he had discharged the duties of chairman, and was an expression of gratitude and esteem. By way of keeping Mr. BALCHIN in as close touch as possible with the governing body of the Society, he was appointed to the post of Hon. Treasurer. It is gratifying to know that the balance-sheet of the Society shows a profit on the year's working of £39 2s. 4d., and that there is a balance in the hands of the bankers of £107 7s. 3d. Mr. GEO. MILES, the Vice-chairman of the committee, was elected Chairman; and testimony was borne to the efficient services of the Secretary, Mr. THORPE.

MR. BLACKMORE AND HIS PEARS.—"F.R.H.S." writes:—Distinguished as was the position occupied in the literary world by the late R. D. BLACKMORE, it is probable that, horticulturally, he was best known as a grower of Pears. With respect to those fruits, no doubt he possessed a very wide knowledge, although it must be understood that it was largely limited to his own gardens at Teddington, not at all the best place in the kingdom for testing the merits of these pleasant fruits. The late Dr. HOGG seems to have placed a very high opinion on Mr. BLACKMORE's judgment in the matter of Pears, for the references to the distin-

guished Teddington novelist in the *Fruit Manual* are extremely frequent and effusive. But Mr. BLACKMORE, all the same, may not have had wider knowledge than have many good growers, whether gardeners or traders. Less depends on the variety grown, if all be grown on one method, than on knowledge of diverse methods of culture and treatment, such as is found in our best gardens and

great excellence. The daily papers mention that Mr. BLACKMORE rather lost than gained by Pear-culture. Well, every grower for market sale knows that having all one's eggs in one basket inevitably leads to loss. Still, very little is known as to the nature of the crops obtained, the samples secured, or the method of marketing adopted. But it is certain that several years since other gardens were



FIG. 18.—GRINDELIA PATENS.

(From specimens kindly sent us by Mr. Gumbleton.)

elsewhere. At Teddington, Pears have been chiefly grown in a very free way. Anyone passing the extensive walled-in gardens will not fail to notice the pyramidal or standard trees towering up high above the enclosures. This style, which may literally be described as free, is hardly that commonly adopted in good gardens, where restriction, with occasional root-pruning and liberal feeding, is found to accomplish wonders in the case of all Pears, and many that as free-grown trees are indifferent, by this system are made to be of

thickly planted with Pear-trees, that now show up well above the walls, apparently in luxuriant health, and their presence rather leads to the belief that Pear-growing at Teddington was not unprofitable.

PLANT PORTRAITS.

SALVIA SPLENDENS "Silverspot."—Leaves green, dotted with yellow. *Florists' Exchange*, December 30, 1899.
SANGUINARIA CANADENSIS, Blood Root.—*Mechan's Monthly*, January.

GRINDELIA PATENS.

At the commencement of last year I received from Mr. Shin, Curator of the Government Botanical Station at Berkeley, California, the seeds of four species of *Grindelia*, two of them named *G. patens* and *G. cuneifolia*, and two unnamed, and labelled respectively as *G. species*, and *G. species* from Fort Bragg. They all came up well, and in appearance and habit of growth the first three are almost similar the one to the other; but the fourth is much dwarfer, and lower growing, with smaller leaves. Only the first-named, as represented in the woodcut (fig. 18), has bloomed as yet; but as the others are growing vigorously, I hope to see them all bloom in the course of next spring or summer. I have sent plants of all four to the Royal Gardens, Kew, for identification. *G. patens* is a very pretty pale yellow Composite. *W. E. Gumbleton*.

KEW NOTES.

AMORPHOPHALLUS TITANUM.—A healthy plant of this gigantic Aroid is now growing in a stove at Kew. It will be remembered that a large example of it was for years an attraction in the T range, where ten years ago it culminated its career by producing an enormous inflorescence, which was figured in these pages. This plant was exactly ten years in growing from a small seedling to the flowering stage, after which it declined in health and finally died. Kew is indebted to Mr. C. Curtis, of Penang, for the present plant, he having succeeded in obtaining a few tubers from Sumatra, where alone this species is found. They were distributed by Messrs. F. Sander & Co., but the Kew example is said to be the only one that has survived. Judged by its present rate of growth and general vigour, we shall not have to wait another ten years to see this truly wonderful flower at Kew again.

AMOMUM ANGUSTIFOLIUM.

A plant of this, one of the large "Meligettas," or "Grains of Paradise," of tropical Africa, has been flowering for some weeks in the Water Lily-House at Kew. It resembles *Hedychium coronarium* in the characters of its leafy stems, which are 6 feet high at Kew, reaching a length of 10 to 15 feet in a wild state. In *Hedychium* the flowers are in terminal heads on the leafy stems, but in *Amomum* they are borne on separate stems, which spring direct from the rhizome. This stem in the plant under notice is as thick as a swan's quill, a foot high, clothed with closely-fitting green scales, and terminating in a head formed of dull red bracts, from amongst which spring the large handsome flowers, each 2 inches wide, the upper corolla-lobe being the largest, bright crimson, and hooded, whilst the fleshy lip is cream-yellow, and deflexed. This differs in some particulars from the figure in the *Botanical Magazine*, t. 4764, where it is called *A. Danielli*; but according to the *Flora of Tropical Africa*, the species is a somewhat variable one.

A GIGANTIC LEMON.

In the Mexican-house at Kew there is a young tree labelled *Citrus medica* var. *Limonum*, which is remarkable for the large size of its leaves and fruits, the former being 8 inches by 4 inches, and the latter 8 inches long and 6 inches in diameter. There are a pair of these fruits on the plant, and they look more like the ordinary Melon of the fruiterers' shops than any form of Lemon hitherto known. Botanically, however, it is a Lemon, and in the structure and flavour of the fruit there is no difference except that of size, these being to the ordinary Lemon what an ostrich's egg is to a hen's egg. A fruit of this large form was sent to Kew four years ago by Miss Badcock, of Taunton, in whose garden a tree of it had been growing for many years. This fruit was considered by Mr. Munro, of Covent Garden, to be too large for commercial purposes. The Kew plant is from a graft kindly supplied by Miss Badcock. *W. W.*



HOME CORRESPONDENCE.

SULPHUR FUMING.—The Hatfield cure for red-spider will be received by the less experienced of the gardening profession, or perhaps I should say, by those who have tried to check this troublesome pest in vain, as a "ray of hope." But first of all let me warn those who have read and inwardly digested Mr. Norman's cure as an effective and simple one, to be cautious. Sulphur fuming is a very old practice for the eradication of insect pests, mildew, &c.; knowing, however, that it is such an efficacious remedy, would it not be more extensively relied upon were it not for the great risks attending its use? More than one instance has come under my notice where fuming has been tried, and the outcome has been scorched foliage in one instance, when the fruit was just commencing to colour. It is needless to say the crop never finished properly, and the loss of foliage rendered successful cropping the following season very doubtful. Mr. Norman is very kind to give in detail the quantities used, but how very much circumstances alter cases. We know that our vineries are treated in various modes: for example, one gardener may grow his Vines with more air than usual, and he would not run the same risk of injury as the one who keeps his Vines in a closer atmosphere. Again, vineries vary in size, the glazing in one house is much more imperfect than in another, some varieties are capable of withstanding fuming better than others—and all these simple but important facts must be carefully considered. My advice to those who feel inclined to follow the treatment is to be extremely cautious, or the results will be very disastrous. *W. H. Clarke.*

SALE OF WEED-KILLER AND OTHER PREPARATIONS CONTAINING POISON—PHARMACEUTICAL SOCIETY *versus* WHITE, WORCESTER.—The appeal having been heard in the Queen's Bench Division of the High Court on the 16th inst., before Mr. Justice Grantham and Mr. Justice Channell, we are glad to be able to report that the Pharmaceutical Society has again been defeated, thereby establishing a case to prove that seedsmen are entitled to take orders for weed-killer, receive payment for the same, and after deducting their commission, to remit the balance to the manufacturer, without being liable under the Pharmacy Act of 1868, provided that they do not stock the preparation, but send the orders direct to the manufacturer for fulfilment. The above decision will also apply to preparations containing nicotine or other poisons. The Society has again given notice to appeal. It has been allowed to do so on certain terms, and will doubtless use every effort if again defeated to have the Act amended. We would urge seedsmen, whether dealing in these preparations or not, to use every effort to have the law so amended in their favour as to enable them to stock poisonous preparations which are required by their customers. Under certain necessary restrictions, we consider that it would be possible to influence the Government in this direction through the Board of Agriculture if only each individual member of the seed trade will do his part, by himself signing and procuring the signature of influential customers to a memorial properly prepared. We warn the trade that if they remain inactive, and careless of their own interests, that the Pharmaceutical Society will ultimately deprive them of the control of several preparations, the sale of which is their natural right. *The Boundary Chemical Coy., Ltd., Railway Arches, Luton Street, Liverpool.*

TRAPPING THE CODLIN MOTH.—In the *Gardeners' Chronicle* of the 13th inst., I note your remarks re the Codlin moth. You will be glad to hear that I have discovered an absolute cure for this pest, the efficacy of which I have fully proved. The method is simply to retain a ring of boiled linseed oil round the trunk of the tree effected as

follows:—Cut a piece of calico sufficiently long to reach around the stem or trunk of the tree, place it say two or three, or even more, feet from the ground, allowing the ends to lay one over the other; sew them together and tie it around with a cord to keep it firmly in place; sew the calico, after turning up the outer part, so as to form a little canal around the tree about an inch wide and an inch deep; fill the canal or ring with boiled linseed oil, which is rather thicker than the unboiled, and will therefore not pass through the calico. Wherever this plan is adopted, no insect will ascend the tree, and any tree much weakened by the attacks of the Codlin moth will soon regain its wonted vigour. Two separate strips of calico would be the easiest way of forming the little canal. *Edward Tangye, Knowle, Warwickshire.*

WYE COLLEGE MANURE EXPERIMENTS.—The quotation on p. 40, of manure experiments at Wye College, seems to leave something to be desired in the matter of clearness. For instance, is it to be assumed that each portion of the manures mentioned in the extract suffices for a yard of ground for one crop? or does it mean that in manuring such an area with chemicals the proportions named should be all used in combination? In the first case 6 ounces of sulphate of ammonia, nitrate of soda (why two nitrogenous manures?), and kainit should be employed. In the second case, 4 ounces of phosphates and 1 lb. of lime. Were these added we should have not less than 11 ounces of these dry manures per square yard, and would mean about 19 lb. per square rod; therefore the employment of the whole cannot well be meant. Of course, had it been stated that the nitrogen and potash were for certain crops, and the phosphates and lime for other crops, the matter might have been better understood. Possibly, my dulness is evident—possibly, something else is. At present the matter seems a little confused. *Bothered.*

APPLE NEWTON WONDER.—Replying to the note from Mr. W. Taylor, on p. 45, I can assure him that neither the time of gathering nor our method of storing the fruits of this Apple, caused them to become spotted. To prove this statement I am sending herewith two fruits of Newton Wonder, and one fruit each of the varieties Sandringham, Annie Elizabeth, Reinette du Canada, and Cox's Pomona, all of which have been grown and stored under the same conditions. The fruits of Newton Wonder are not nearly so fine as those mentioned in my note, published in *Gardeners' Chronicle* for January 13, neither are they so badly spotted as those finer fruits were. If there is anything in the local conditions that causes the spotting, it must be the soil, which is on the colt formation. I am informed that my predecessor (the late Mr. W. G. Pragnell) had also the same trouble with this Apple. I am glad to learn the name of the raiser of this Apple, which in other respects is a very fine one, and Mr. Taylor's statement as to its long-keeping qualities has made me envious. A few trees of it were planted in the orchard here (which is on grass) two years ago, and I shall await with interest their coming into bearing, in the hope that the more natural conditions under which they grow will result in the fruit they produce being better keepers. *T. Turton, Castle Gardens, Sherborne, Dorset.* [All of the specimens have been admirably preserved, and the cause of "spotting" is certainly not due to the method of storing the fruits. *Ed.*]

I have the most distinct recollection that among all the dishes of this Apple exhibited in both northern and southern sections at the Crystal Palace Royal Horticultural Society's Fruit show in 1897, only two lots were free from spotting, the others being very badly affected. If clean fruits could not be exhibited at such a show, the Apple must be a very faulty one in this respect. In 1898 the fruits shown were fewer, I think, but cleaner than in the previous year. Spotted Apples cannot be kept for any great length of time, but varieties differ in this respect considerably in different localities. In Suffolk I found that Bramley's Seedling spotted so badly that it was almost worthless, except for early use. Warner's King was liable to the same affection, but this could be corrected and the season extended by several weeks by gathering the fruits as soon as they would part from the tree, and without breaking the stalks. By this means grand coloured and clean samples were secured for the November shows. *J. C. Tallack, Shipley Hall Gardens, Derby.*

FRUITING OF EUONYMUS.—The year 1899 was remarkable for the fruiting of many shrubs besides the Euonymus, some of which I thought worth recording. The following shrubs fruited here, most of them for the first time: *Catalpa bignonioides*, *Calycanthus occidentalis*, *Cornus mas variegata*, *Wistaria multi-juga*, *Asparagus acutifolius*, *Nandina domestica*, *Clematis aethusifolia*, *C. integrifolia*, *Euonymus radicans variegata* (abundance of fruit variegated like the leaves); *Notoxylum Carmichaeliae*, and *Magnolia Lenne*. The influence of the hot dry summer will be seen in many shrubs this year; and as a commencement, my *Photinia serrulata*, at least sixty years old, is covered with flower-buds for the first time. *Henry J. Ellacombe, Bitton Vicarage, Bristol, January 20.*

Your correspondents who have written on this subject will be interested to learn that so far inland as this part of West Middlesex, both the green and variegated forms of *E. japonicus* have flowered abundantly during the past two years. Many branches being quite furnished with the small whitish blossoms. The fruits have, however, not been quite equal to the display of blossoms, though a large number of fruits were coloured well early in November. As the fruits became attractive, however, they gradually disappeared, and at the present time I do not see a solitary berry remaining. I am strong in the belief that age as well as heat has much to do with the flowering of these shrubs. *E. europæus* fruits more freely, and seedlings are quite frequent. The position of the plants is one due south, the green form acting as a screen above a low wall, the variegated kind being well sheltered from the north by the dwelling-house. Both are untrained. In a position quite near the white Jasmine, *J. officinalis* fruited rather freely a year or two since, the glossy black berries being most attractive. Where the *Euonymus* flowers at all, there should be little difficulty in obtaining its fruiting in inland places, as the flowering is somewhat early in the summer. *E. Jenkins, Hampton Hill.*

SEEDS NOT TRUE TO NAME.—I observe in the last issue of the *Gardeners' Chronicle* a report of my contention with Messrs. Howcroft & Watkins, and I dare to say that it may seem strange to some of the readers of the *Gardeners' Chronicle* that I made my claim up to £60. But 14,000 Celery plants, if well grown, cost much labour and expense. The small quantity which I have sold did not make £5, and the remainder rotted in the ground. [I have sent you a sample, which was sent to me for Clayworth's Prize, a pink variety. *Geo. Perkins, Leicester.* [The plants are those of *Celeriac*. *Ed.*]

VIOLETS FOR EXHIBITION.—It would not be unwise to incorporate in the Chrysanthemum schedules prizes for Violets. The Violet is a favourite flower, and recently we have had introduced several new and striking varieties. There are now so many shades of colour that a stand of them could be made very attractive. Prizes might be offered for bunches of blooms tastefully arranged in baskets of moss with foliage; also for plants in pots, that the habit and flowering qualities of each variety might be correctly judged; and for exhibits arranged in such a manner as to display the merits of individual blooms. I would suggest that in judging, the points should be as follows:—1st, perfume; 2nd, length and strength of flower-stalk; 3rd, size of flowers of a true Violet shape. *Edwd. Bennett, Ash Vale, Farnborough.*

ADIANTUM C. V. IMBRICATUM.—Recurring to the recent references to this Fern and its presumed non-sporiferous character, Mr. C. B. Green, my neighbour, has just brought me in pressed fronds of last season, one of which appeared profusely fertile. On examination under my microscope I found rows of fully-developed, ripe, but unburst sporangia under the indusia, and no signs of abnormality, in the shape of incipient bulbils, which I expected to find. The only unusual feature was a slightly shrivelled aspect of the sporangia, and the absence of any burst ones under the dried conditions. On crushing the material collected on the glass-slip, I managed to free a number of evidently perfect spores, and a number of imperfect ones, the undoubted presence of the former removing all question as to the, at any rate, occasional spore-bearing capacity of the variety. The facts that so many imperfect spores presented themselves, that the otherwise normal sporangia were

somewhat shrunken, and that despite the rough treatment none of them burst in the usual way, indicate a certain degree of imperfection; but, on the other hand, some of the freed spores were perfectly full-bodied and completely fashioned. Mr. Green is sowing from the frond, and I have little doubt will succeed in raising plants. *Chas. T. Drury, F.L.S., V.M.H., Acton.*

LAW NOTES.

SALE OF POISONS.

THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN v. WHITE.—In the High Court of Justice, Queen's Bench Division, Divisional Court, Royal Courts of Justice, Tuesday, January 16, 1900, before Mr. Justice Grantham and Mr. Justice Channell.

Mr. Justice Grantham: We need not trouble you, Mr. Cavanah. I have no doubt that in this case the learned County Court Judge was right. He has found as a fact that there was evidence before him—in fact, practically the evidence was almost uncontradicted as far as the defendant was concerned, that he was a florist, and knowing what was useful for the killing of weeds, he was ready to advise people where to get it. He thought also that he might assist in his own business to make a little money, and so he arranged with the people who were the sellers, and who, as it were, kept a shop for it, to tell the people who wanted to buy the stuff where to go for it, and, as he said in his evidence, "When anyone came to me, I said, 'you can either go to so-and-so, send your order direct to them, or, if you like I will take the order and send it on,'" and he was provided with billheads of this Liverpool firm for the purpose of giving receipts for money which was paid to them on their account, and he was to have a certain commission on the sale, which in this case was 25 per cent., that being so it seems to me that he was not the person who was managing the sale, he was merely the conduit-pipe to introduce one person to the other, and I do not think I can put a better example than take the case where the whole transaction is done in a shop. There is a chemist's shop kept wherever you like, and a person comes into that shop to buy some poison, there is a boy in the shop or a woman, or a girl, or any other unqualified person you like in the shop. The person wishing to have some poison, says to that person, "I want some rat-killer," or if you like to take this case, asks for weed-killer; you would hardly go to a chemist's for weed-killer, but you do very often go to a chemist's for rat-poison. You say to the boy, "I want some rat-poison." The boy says "All right; there is my master behind the counter, he manages, I will go to him and tell him what you want." Thereupon the master hears what he wants, and the master supplies the person, he being a qualified person. Can it be said that the boy who first saw the person who came into the shop and told him to go to where his master was, where the person who would deliver it, was the person who sold or who had the management of the poison? Certainly not. If that is so in a shop how can it be said that the person who does not keep it at all, who has it not on his premises, does not make it, does not deliver it, but who says I will either take your order and send it on, or you may send your order on direct yourself if you like—can it be said that he is the person who was managing the sale? I accept the judgment, as I am bound to do, on this point of Lord Selborne, applying it to this case, although it does not apply directly; but I accept his judgment, and I say, acting on that authority, the learned County Court Judge was right.

Again, there was a case quoted, very properly, in which Mr. Justice Hawkins gave judgment. I quite accept that as binding on me. It is a case of which I entirely approve, but the facts there are not the facts of this case at all; therefore, for those reasons on the evidence in this case, as the learned County Court Judge has distinctly found that he

believes the evidence of the defendant. I think the appeal must be dismissed.

Mr. Justice Channell: I am of the same opinion. I think the learned County Court Judge must be taken to have found that this defendant had not the control and management of the sale. I think the cases clearly establish that the person who has the control and management of the sale is liable, although he is not the principal seller. The cases clearly go to that; but here there was, as it seems to me, ample evidence on which the learned County Court Judge could find that this man had not the control and management of the sale. The only question in the case, which is one of law, is—What is the meaning of having the control and management of the sale? As far as I can gather from the cases, it means the person who could do or not do the things which the Act requires to be done with reference to the sale. Now here this man was merely the same as a carrier, or messenger, or something of that sort, so far as his part of the transaction is concerned, with the single exception that he got 25 per cent. out of it; and, as my brother has said, he had that 25 per cent. as a reward for recommending this substance as an effective weed-killer. It is obvious that he was employed by the principal, and that is the reason which tempts them to give him this commission. I think, upon the whole, there was ample evidence from which the learned County Court Judge could properly find as he found, that the defendant was not the person who had the control and management of the sale.

Leave to appeal was given on certain terms, namely, that the appellants undertook to pay the respondent's costs as between solicitor and client if the appeal was unsuccessful.

To enable our readers the better to form a just opinion of this case, we append extracts from the Sale of Poisons and Pharmacy Act Amendment:—

SECTION 1.—From and after December 31, 1888, it shall be unlawful for any person to sell or keep open shop for retailing, dispensing, or compounding poisons, or to assume or use the title "Chemist and Druggist," or Chemist, or Druggist, or Pharmacist, or Dispensing Chemist, or Druggist, in any part of Great Britain, unless such person shall be a pharmaceutical chemist or a chemist and druggist within the meaning of this Act, and be registered under this Act, and conform to such regulations as to the keeping, dispensing, and selling of such poisons as may from time to time be prescribed by the Pharmaceutical Society with the consent of the Privy Council.

SECTION 15.—From and after December 31, 1888, any person who shall sell or keep an open shop for the retailing, dispensing, or compounding poisons, or who shall take, use, or exhibit, the name or title of Chemist and Druggist, or Chemist or Druggist, not being a duly registered pharmaceutical chemist, or chemist or druggist, or who shall take, use, or exhibit the name or title Pharmaceutical Chemist, Pharmacist, or Pharmacist, not being a pharmaceutical chemist, or shall fail to conform with any regulation as to the keeping or selling of poisons made in pursuance of this Act, or who shall compound any medicines of the British Pharmacopoeia except according to the formularies of the said Pharmacopoeia, shall for every such offence be liable to pay a penalty or sum of £5, and the same may be sued for, recovered, and dealt with in the manner provided by the Pharmacy Act for the recovery of penalties under that Act, but nothing in this Act contained shall prevent any person from being liable to any other penalty, damages, or punishment to which he would have been subject if this Act had not passed.

SECTION 17.—It shall be unlawful to sell any poison, either by wholesale or by retail, unless the box, bottle, vessel, wrapper, or cover in which such poison is contained be distinctly labelled with the name of the article, and the word Poison, and with the name and address of the seller of the poison, and it shall be unlawful to sell any poison of those which are in the first part of the Schedule (A) to this Act or may hereafter be added thereto under section 2 of this Act to any person unknown to the seller, unless introduced by some person known to the seller, and on every sale of any such article, the seller shall, before delivery, make or cause to be made an entry in a book to be kept for that purpose, stating, in the form set forth in Schedule (F) to this Act, the date of the sale, the name and address of the purchaser, the name and quantity of the article sold, and the purpose for which it is stated by the purchaser to be required, to which entry the signature of the purchaser and of the person, if any, who introduced him shall be affixed; and any person selling poison otherwise than is herein provided shall, upon a summary conviction before two justices of the peace in England, or the sheriff in Scotland, be liable to a penalty not exceeding £5 for the first offence, and to a penalty not exceeding £10 for the second or any subsequent offence, and for the purposes of this section the person on who e

behalf any sale is made by any apprentice or servant shall be deemed to be the seller; but the provisions of this section which are solely applicable to poisons in the first part of the Schedule (A) to this Act, or which require that the label shall contain the name and address of the seller, shall not apply to articles to be exported from Great Britain by wholesale dealers nor to sales by wholesale to retail dealers in the ordinary course of wholesale dealing.

SOCIETIES.

ROYAL HORTICULTURAL.

JANUARY 23.—The meeting held in the Drill Hall, James Street, Westminster, was, as regarded the exhibits, a comparatively small one, and was but little visited by the public. The chief items consisted of a collection of *Ferns*, small, admirably grown plants; a group of *Cyclamens*, another of *Primula sinensis* in new colours, and a quantity of miscellaneous Orchids. Fruit was conspicuous by its absence in anything like quantity, and comprised continental varieties of the Apple, contributed by Messrs. G. BUNYARD & Co., of Maidstone.

In the afternoon a lecture was given by Mr. Geo. Bunyard, V.M.H., the subject being "The Neglect of Flowering-shrubs in our Gardens." The beautiful effects to be obtained from such plants have been frequently urged in our own pages; and Mr. Bunyard's lecture deserved the attention accorded it by the audience.

Floral Committee.

Present: W. Marshall, Esq., in the chair; and Messrs. C. T. Drury, H. B. May, R. Dean, J. H. Pitt, J. Hudson, C. R. Fielder, G. Gordon, J. W. Barr, C. Shea, R. J. Cutbush, E. T. Cook, C. Blick, G. Paul, and J. Fraser.

A small group of Ferns growing in pots and baskets, was shown by Messrs. J. HILL & SON, Barrowfield Nurseries, Lower Edmonton. The plants were examples of good cultivation, though none was of large size. Of such are not frequently met with we may mention *Pteris straminea*, a species with fronds of a refreshing bright green tint and erect growth; *Adiantum Collii*, having fronds of a light green tint, and sparse habit; *Pellaea rotundifolia*, *Gymnogramma dohrydunense*, an effective "golden Fern"; *Pteris Victorice*, *Notholaena sinuata*, *Adiantum dolabriforme*, *Asplenium ornatum*, A. Belangeri, a very graceful species; the dwarf-spreading *Hemionitis palmata*, several variegated forms of *Pteris*, *Lastrea lepida*, *L. aristata variegata*, &c. An award of a Silver Flora Medal was made.

Messrs. HUGH LOW & CO., Bush Hill, Enfield nurseries, staged a small group of *Cyclamen latifolium* and others, including "Bush Hill Pioneer," of a rose-purple colour, effective and true; and Bush Hill Pioneer, the white form of the crested *Papilio*, or Butterfly strain, likewise effective; and lastly, C. *Papilio* in variety in white, and half-a-dozen different tints of pink, purple, and also bi-coloured were noted. An award of a Silver Bankian Medal was made.

Messrs. H. CANNELL & SONS, Swanley, Kent, had an exhibit of nice fresh-looking Chinese *Primulas*, consisting of "The Sirdar," a large carmine-coloured flower; "Kensington Queen," a choice white; "Surprise," a capital purplish-crimson; "My Favourite," a pleasing shade of pink; "H. Cannell," of deep crimson; "Luther alba," a small, white flower, with a yellowish-green centre; "Miss Doris," another fine white variety; "Swanley Blue," &c. The plants were mostly grown in small 48's. Some bigger plants included "Lady White," a very fine white; a brilliantly-tinted, semi-double red; "Duchess of Fife," a grand pink flower, &c. An award of a Silver Flora Medal was made.

Messrs. J. VITCH & SONS, The Royal Exotic Nurseries, Chelsea, had their usual welcome boxful of cut blooms, *Rhododendron Javanico-jasminiflorum* hybrids, *Sousanar de J. H. Mangles*, of rich crimson tint, and large truss and flower. The firm also exhibited that charming seasonable *Witch Hazel*, *Hamelis arborea*, four plants well furnished with flowers.

Messrs. BARR & SONS, King Street, Covent Garden, showed a potful of *Galanthus Elwesii* var. *Whittallii*, grown out-of-doors. The flower externally is pure white, supported on a peduncle 8 inches high, i.e., 1 inch higher than the leaves at this date. Two pansful of *Polyanthus Narcissus*, otherwise the Good Luck Lily, were shown as an example of water culture. They were robust and prolific.

Awards.

To Messrs. J. VITCH & SONS, Ltd., Royal Exotic Nurseries, Chelsea, for *Rhododendron multicolor* var. "Triton," a variety with a small truss of moderate sized flowers of a cherry-red tint, very free, and novel as regards the colour (Award of Merit).

To LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House (gr., Mr. Hudson), for *Justicia flavicomis*. The species is a useful addition to garden plants which flower in the winter. The flowers are terminal, freely produced, and of a light yellow tint (Cultural Commendation).

Orchid Committee.

Present: J. Gurney Fowler, Esq., in the Chair; and Messrs. Jas. O'Brien (Hon. Sec.), J. Colman, J. Douglas, E. Hill, A. Hialop, H. A. Tracy, F. J. Thorne, W. H. Young, W. H. White, H. J. Chapman, J. Gattiel, F. Sander, De B. Crawshaw, H. T. Pitt, and T. B. Haywood.

The show of Orchids has been much better than has been the case at the last few meetings, and a number of interesting subjects were brought before the Committee. Sir Trevor Lawrence, Bart., Burford (gr., Mr. W. H. White), sent a good collection of finely-grown plants, showy, and also of botanical interest. Among the former were splendid plants of the Burford hybrid *Dendrobium* × *Burfordense* and *D. × melanodiscus* Rainbow, very profusely flowered; also a plant of *D. × Cordelia*, a mass of bluish-white flowers with purple-coloured centre; *Cypripedium* × *Salteri* Hyeannum with ten fine flowers; *C. × Leeanum* Albertinum, very fine; the singular *Epidendrum amplexicaule*, and others, which will be found in the list of awards.

Sir Frederick Wigan, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young), was awarded a Silver-gilt Flora Medal for a very handsome group composed of fine examples of rare things, many of which, such as the *Phalenopsis*, of which there was a display, are considered difficult to grow. There were twenty-five spikes of *P. Schilleriana*, and one of the unique white variety "Vestalis;" *P. Stuartiana*, and the fine Wigan's variety off; *P. Aphrodite*, *P. amabilis*, and others. Also in the group were *Dendrobium atro-violeum* with eighteen spikes; *D. Ainsworthi* Leechianum, *Laelia Lawrenceana*, some good *Laelia autumnalis atrovirens*; *Cypripedium* insignis "Harefield Hall variety," *C. × Godseffianum*, *C. callosum*, *Vanda lamellata*, *Erised vanderum*, with eleven flowers; *Oncidium Warscewiczii*, *Masdevallia × Pourbaiki*, and the handsome *Laelio Cattleya × Callistoglossa* "Princess of Wales."

The Right Hon. Lord Rothschild, Tring Park, Tring (gr., Mr. E. Hill), showed a magnificent spike of a very fine variety of *Odontoglossum crispum*, grown at Tring Park for seventeen years, the flowers being of good size and shape, each of the sepals bearing a purplish blotch. The inflorescence, which was about 3 feet 6 inches in length, had three branches, the number of flowers being thirty-seven (Cultural Commendation).

Haron Schroeder, The Dell, Staines (gr., Mr. H. Ballantine), showed a magnificent spike of *Odontoglossum × Wilckeanum* Schroederianum, with a broadly-branched spike of white flowers, heavily blotched with purple.

Messrs. JAS. VEITCH & SONS, Chelsea, staged an effective group, in which were good examples of *Cypripedium × Niobe*, *C. × Leeanum*, *C. × Hera* in many varieties, *C. × vexillarium*, *C. × Mino*, *C. × Harrisianum* Dautchieri, *C. × Leonidas*, *C. × Carnusianum*, Veitch's variety, *C. × Lathamianum*, *Dendrobium × Wardianum-japonicum*, *D. atro-violeum*, *D. × Cassiope*, *D. × euanthemum leucopetrum*, *D. × dulce*, *D. Findlayannum*, the pretty new *Phalenopsis × Hymen* (Manni) ♀, *Luddemanniana* ♂, &c.

Messrs. HUGH LOW & CO., Clapton, showed two distinct forms of *Cymbidium Tracyanum*, *Dendrobium × Vannerianum*, *Phalenopsis × Schilleriano-Stuartiana*, and *P. × intermedia Brymeriana*.

G. F. MOORE, Esq., Chardwar, Bourton-on-the-Water (gr., Mr. Morris), sent *Cypripedium × Beekmanni* in fine flower; *C. × Mooreanum*, resembling a fine form of *C. × Hera*; and *Cattleya Percivaliana*, "Chardwar variety."

W. P. BURKINSHAW, Esq., Hessele, Hull, sent *Cypripedium × nitens*, "Hessele variety," a very handsome form; and *C. × Hera punctatum*, in which the large white dorsal sepal bore rose-purple spots.

Sir WM. MARRIOTT, The Down House, Blandford (gr., Mr. Denny), sent *Odontoglossum crispum castum*, a pure white variety, with light orange-coloured blotches on the lip.

Messrs. F. SANDER & CO., St. Albans, showed a finely-flowered specimen of *Dendrobium atro-violeum*.

J. T. BENNETT-POW, Holmewood, Cheshunt (gr., Mr. Downes), showed a splendidly grown plant of *Laelia anceps Sanderiana* with four spikes, three of five and one of four flowers (Cultural Commendation).

R. G. THWAITES, Esq., Chessington, Christchurch Road, Streatham, showed *Dendrobium × Galatea* (moniliforme × *Holsee roseum*).

Messrs. CHARLESWORTH & CO., Heaton, Bradford, showed *Laelio-Cattleya × Cappel* (*L. cinnabarina × C. Warscewiczii*) with pretty light yellow flowers, with purple markings on the narrow wavy lip; and *Cypripedium × Cowleyanum* magnificum.

DR B. CRAWSHAY, Esq., Rosefield, Serenoaks (gr., Mr. S. Cooke), showed four good forms of *Odontoglossum Rosii* majus.

Messrs. STANLEY-MORRIS & ASHTON, Southgate, sent *Cattleya Luddemanniana* Abnor Hassall, a pretty variety with dark rose markings on the petals.

G. W. LAW-SCHOFIELD, Esq., New-Hall-Hey, Rawtenstall (gr., Mr. Shill), sent *Cypripedium × nitens albens*.

Awards.

FIRST-CLASS CERTIFICATE.

Cypripedium × Sanderiano-Curtisii (*Sanderianum* ♂ *Curtisii* ♀).—A very stately hybrid with the foliage much resembling a strong, light-coloured *C. Curtisii*, the large labellum of the flower and staminode also closely following that species.

The ovate, acuminate upper sepal is greenish-white, with distinct chocolate-purple lines. Lower sepals similar, but smaller and lighter marked. Petals arched and decurved, extending about six inches, whitish-rose, with dark purple spots. Lip and staminode reddish-rose. The wavy upper edge of the petals closely resembles *C. Sanderianum*. From NORMAN C. COOKSON, Esq., Oakwood, Wylam (gr., Mr. Wm. Murray).

Epidendrum × Wallisii-ciliare superbum (*Wallisii* × *ciliare*).—A fine improvement on the others of this singular cross.

Sepals and petals dark yellow; lip white, with rose-purple markings. From Messrs. JAS. VEITCH & SONS, Chelsea.

Phalenopsis × Schilleriano-Stuartiana.—A very fine hybrid, with well-rounded flowers, partaking of the characteristics of both parents named, especially in the lip, which is quite intermediate. Flowers white, with a delicate rose-pink tint on the sepals and petals, and red markings on the yellow disc of the lip. From Messrs. HUGH LOW & CO., Enfield.

AWARDS OF MERIT.

Calanthe Regnierii atoleuca.—A pure white variety of the pretty winter-flowering species. From Sir Trevor Lawrence Bart. (gr., Mr. W. H. White).

Laelio-Cattleya × callistoglossa Princess of Wales (*C. Warscewiczii × L. purpurata Russelliana*).—A finely-formed flower of a delicate rose colour, the front of the broadly-expanded labellum being of a bright, yet dark rose-tint. A fine plant with eight flowers was shown by Sir Frederick WIGAN, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young).

Cypripedium × Actenus Langleyense (insigne *Sanderæ* ♂ *Leeanum* ♀).—In form this resembles *C. × Leeanum*, though in colour it is nearer to *C. insignis Sanderæ*. The upper sepal has a pure white ground, with a small green blotch at the base, and a few purple spots. Petals and lip are yellow, the former with a slight brown line, and some dark coloured hairs at the base. From Messrs. JAS. VEITCH & SONS, Chelsea.

Laelia × Mrs. Gratrix superba (*cinnabarina* ♀ *Digbyana*).—Flowers of a clear yellow tint; the lip fringed. From Messrs. JAS. VEITCH & SONS.

Phalenopsis × intermedia Brymeriana (*Aphrodite* × *rosea*).—In this case probably *P. rosea* was the seed-bearer, as the variety *Brymeriana* has flowers with more of the form of that species. The sepals and petals are tinted rose-pink; the lip dark rose-crimson. From Messrs. HUGH LOW & CO.

Laelio-Cattleya × Fanny Leon (*L.-C. × exoniensis* × *C. labiata*).—A fine flower somewhat resembling *L.-C. × eximia*. The sepals and petals of a clear rosy-lilac; the lip rich purplish-crimson, with yellow markings at the base. In outline, the lip partakes closely of *L.-C. × exoniensis*. From H. S. LEON, Esq., Bletchley (gr., Mr. A. Hishop).

Laelio-Cattleya × Swaray (*L. cinnabarina* ♀ *C. superba* ♂).—A very distinct and brightly-coloured hybrid of a new form, the labellum being curiously modified to approach *C. superba*. Sepals and petals bright copper-orange; lip claret-crimson, with yellow centre. From Messrs. CHARLESWORTH & CO., Heaton, Bradford.

Laelio-Cattleya × Charlesworthi (*L. cinnabarina* ♀ *C. aurea* ♂).—A very fine hybrid, with flowers equal to those of *L.-C. × Hippolyta*, but different in colour. The sepals and petals are of a reddish-orange tint; the lip is marked with bright purple. From Messrs. CHARLESWORTH & CO., Heaton, Bradford.

BOTANICAL CERTIFICATES.

Dendrobium Madonna.—An elegant species of the slender growth of *D. Amboinense*, and bearing profusely, drooping sprays of white flowers, the labellum having a greenish tint, and some rose-coloured markings at the front. From Messrs. F. SANDER & CO.

Tainia Penangiana.—A Malayan species, with tall sprays of curiously-shaped brownish-green flowers. From Sir Trevor Lawrence Bart. (gr., Mr. W. H. White).

Masillaria leptosepala.—Flowers small, white, tinged with rose. From Sir Trevor Lawrence Bart.

Masillaria arachnites.—Flowers numerous; segments narrow and drooping; clear yellow. From Sir Trevor Lawrence Bart.

Fruit Committee.

Present: G. Bunyard, Esq., in the Chair; and Messrs. W. Poupart, Jos. Cheal, James J. Veitch, A. H. Pearson, Alex. Dean, S. Mortimer, W. Bates, C. Herrin, Geo. Wythes, H. Balderson, J. Smith, G. Norman, J. Willard, and Robt. Fife. A vote of condolence was passed with the family of the late Mr. Blackmore, who was for many years a member of this committee.

Messrs. SUTTON & SONS, Reading exhibited a quantity of ripe fruit of a new Tomato Winter Beauty, a smallish-flattened, very slightly furrowed fruit of a bright scarlet colour. If it be a free copper, we have a useful winter variety in Winter Beauty. It has previously been given an Award of Merit.

Messrs. J. VEITCH & SONS, Chelsea, sent a handsome dish of their Royal Late Cooking Apple, a culinary variety that has already been given an Award of Merit. This award was confirmed.

Mr. J. Chinnery, gr. to the Marquis of ABERGAVENNY, Nevill Court, Abergavenny, sent a dish of Apples "Welsh Beauty," of fairly good flavour and appearance.

From Messrs. G. BUNYARD & CO., Maidstone, came fourteen dishes of Apples, of excellent appearance, and generally of good quality. Included were the following varieties: Improved Ashmead's Kernel, an Apple of good flavour; and a late keeper; and Transparent de Croncels, said to be useful from October until February as a cooking Apple, or for jelly; Hornmead's Pearmain, a good old variety, was well shown; as also were Foster's Seedling, a cross between Blenheim and Cellini Pippins; Beauty of Kent, a good old kitchen variety, but rather past; Belle de Fontaine, Chabley's Kernel, Farmer's Seedling, King of Tomkins County, White Nonpareil, and Twenty Ounce.

Mr. MORRIS, of Sandhurst, was introduced to the members of the Fruit Committee, and showed specimens of dried Plums and other fruits converted by a new and (said to be) a cheap process. The chief question, however, he appeared anxious to solve, was that of how to obtain a supply of Plums and other fruits for drying at a sufficiently low cost to compete successfully with those imported from California and elsewhere.

Awards.

Apple Hornmead's Pearmain.—A well-known cooking Apple, in season from November until April. From Messrs. Geo. BUNYARD & CO., Maidstone (Award of Merit).

Apple Norman's Pippin.—A dessert variety of medium size, slightly russety, and of fairly good flavour. From Messrs. Geo. BUNYARD & CO., Maidstone (Award of Merit).

DEVON AND EXETER GARDENERS'.

JANUARY 17.—The opening meeting of the spring season took place on the above date, Mr. J. MERRITT, gr. to Mr. R. ASHBY, Watford House, Exeter, being the essayist for the evening. The subject of the essay was "The Management of Caladiums for Decoration and Exhibition."

Mr. MERRITT said, that effective as Caladiums were as exhibition plants, the small prizes offered at provincial shows for them discouraged their cultivation by gardeners and specialists; there was also the further disability in the plant requiring the utmost care in packing and transit to preserve the foliage from injury, and the susceptibility of the plant to injury from being placed in a draughty tent or hall. Treating of their cultivation, Mr. Merritt said he potted up his bulbs early in February, the soil used being rough turfy loam, charcoal, rough leaf-mould, sharp drift or silver-sand, and some rough stable manure, not sodden, but similar to that of a spent Mushroom-bed. He used 16-pots, the size in which he exhibited them; they were potted up like Lillies, leaving room at the surface for a top-dressing. Not having the requisite bottom-heat for starting them in, he put them on a bed of moss on a thick plank on one of the flow-pipes under the staging. After they had attained a height of about 6 inches, he put them on the top stage behind other plants, gradually inuring them to the light. As they strengthened, they were afforded an increase of light by degrees, the roots filling the compost. When they were so far advanced he then top-dressed them, and applied a little weak liquid-manure water, increasing the strength of it as the leaves developed. When the plants were fit for exhibition, he shifted them from the stove to a vinery, having a temperature several degrees lower, and he then afforded more air. The larger leaves he supported by placing a blunt-ended stick under them. For ordinary purposes of indoor decoration he used 48's, 54's, and 32's pots, but instead of forcing the plants into growth, he placed them on the ordinary stove-stage, giving them very little water until they had made a fair start, subsequently taking them to the coolest end of the stove, or the warm end of an intermediate-house, not coddling them in any way. An important consideration is, not to afford a great deal of water. He kept the bulbs through the winter, after allowing the foliage to die down, by placing them on a thick plank on the flow-pipes, looking them over about once a month and applying some water to prevent dry rot.

SWEET PEA BICENTENARY CELEBRATION.

JANUARY 19.—The first general committee meeting in connection with the Bicentenary Celebration of the Sweet Pea was held in the Horticultural Club Room, Hotel Windsor, on Friday, when Mr. GEORGE GORDON, V.M.H., presided over a very representative gathering.

The Chairman briefly alluded to the desire expressed in 1899 by leading amateurs, nurserymen, seedsmen, and market growers, that a comprehensive exhibition of Sweet Peas should be held during 1900, together with a Conference, one duty of which should be the classification and selection of varieties. This desire led to a meeting in Edinburgh in September last, when Mr. Gordon (chairman), Mr. H. J. Jones, and Mr. R. Dean (secretary) were elected as a preliminary committee to draw up a scheme for the celebration, and submit it as early as possible to the general committee. After this brief statement, the Chairman requested the Secretary, Mr. R. Dean, V.M.H., to read the letters received from the Crystal Palace Company and the Royal Aquarium Company. The former offered to accommodate the exhibition, provide the necessary conveniences for a conference meeting, and subscribe £20 to the prize fund; this being the best offer, it was agreed, on the proposal of Messrs. H. A. Needs and H. J. Wright, that the Bicentenary Celebration be held at the Crystal Palace, Sydenham, on July 13 and 14, 1900, or as near those dates as could be conveniently arranged without clashing with other exhibitions.

Having settled the place and date of celebration as far as possible, the next point for discussion was the schedule of prizes, of which a preliminary draft had previously been communicated to the Vice-President and committee. Before the discussion of classes and prizes, a list of subscriptions received and promised, up to date, was submitted by the Secretary, amounting to nearly £90. As the whole of the subscriptions received were unsolicited, the committee felt that the success of the undertaking was practically assured, believing that those interested in the most beautiful, useful, and fragrant of annual flowers, the Sweet Pea, would not fail to show their practical sympathy with the committee's efforts as soon as affairs had received definite form. The schedule is a comprehensive one of twenty-eight classes, each with four, and some with five prizes, offered on a most liberal scale. Cases by class the schedule was discussed, and numerous minor alterations made. Nineteen open classes are provided for cut blooms, all to be shown in vases, these including classes for forty-eight, thirty-six, and eighteen bunches, and thirteen classes for one

bunch of a specified colour or colours. Four classes are limited to amateurs employing either one or no regular gardener, and there is a division, open to all, consisting of five classes instituted for the purpose of demonstrating the value of Sweet Peas in all forms of decoration. The total amount offered in prizes in the preliminary schedule exceeds £90, and this comparatively large sum should ensure a display of the most beautiful and instructive character.

Special prizes are invited, but they must, in accordance with the resolution passed at the Edinburgh meeting, be free from any trade conditions. Already several firms have intimated their intention of providing the prizes in certain classes, and at this meeting it was decided to accept Mr. Henry Eckford's generous offer of £15, the sum offered in Class 1 for forty-eight bunches of Sweet Peas in not fewer than thirty-six varieties, an offer made by the Wem veteran to commemorate the fact that this is the twenty-first year of his work in selecting and cross-fertilising Sweet Peas. Mr. H. J. Jones' offer to supply the prizes in Class 25, for an epergue of Sweet Peas, £2 17s.; and Mr. R. Sydenham's offer to supply the prizes in two of the amateur classes, amounting to upwards of £5, were accepted and acknowledged. With reference to the rules and regulations for competitors, it is worth while noting that from subscribers of 10s. 6d. and upwards no entrance-fees will be demanded, but non-subscribers must pay an entrance-fee of 5s. to entitle them to compete in any six classes (subject to divisional schedule regulations), but a further entrance-fee of 5s. must be paid if this number is exceeded.

Conference proceedings, subscribers' tickets, publication of report, and other matters were referred to, but reserved for final discussion and settlement at the Committee meeting to be held on Friday, February 23, by which date the complete schedule, regulations, &c., &c., will be ready for acceptance and immediate publication.

Meanwhile, the Committee desires the sympathy and financial assistance of all horticulturists, so that the forthcoming celebration may be made the unqualified success its interest and importance demands. Any surplus funds remaining after the payment of prizes and necessary expenses will be given to the gardening charities.

Further particulars can be obtained from the Hon. Secretary, Mr. R. Dean, V.M.H., Ranelagh Road, Ealing.

MISCELLANEOUS SOCIETIES.

Ipswich Gardeners' and Amateurs' Mutual Improvement Association.—The public meeting mentioned in the *Gardeners' Chronicle*, January 6, was held in the Ipswich Town Hall on the 15th inst., most of the local nurserymen and gardeners attending. The proposition to form an association was carried unanimously, a committee of nine being appointed to arrange details; Mr. W. E. Cross, Holy Wells Gardens, was elected Hon. Secretary.

Obituary.

R. D. BLACKMORE.—We much regret to record the death of this celebrated novelist, which took place at his residence at Teddington on Saturday, January 20. To the general public Mr. Blackmore will be best remembered by his novel, *Lorna Doone*, which appeared in 1869, and is one of the great novels of the century. By gardeners he will be long remembered as a cultivator of Pears and market-gardener, carrying on business at Teddington, and as we know from personal correspondence not with any great amount of success. Probably the busy man of letters regarded his venture in this field of activity chiefly as a means of relaxation, not looking over-carefully to the monetary side of it. The late Dr. R. Hogg thought highly of his estimate of the cropping and edible properties of Pears, and interspersed the novelist's opinions freely throughout his descriptive notes on varieties of Pears in the *Fruit Manual*.

For our own part we attached but little value to these estimates and opinions, being aware of the immense influence of soil, climate, situation, and methods of cultivation on the cropping capabilities and quality of Pears, and that what might or might not succeed at Teddington would turn out otherwise in other localities. Mr. Blackmore, besides Pear-trees, possessed at Teddington a most prolific Vine, of which he was very proud.

Some years ago he actively identified himself with the work of the Royal Horticultural Society, and for some time was a member of the Fruit Committee. He was born in 1825, at Longworth, Berkshire, his maternal grandmother being a descendant of Dr. Doddridge, whence his name, Richard Doddridge Blackmore.

JOHN FRASER.—The death of Mr. John Fraser, on the 20th inst., at the age of seventy-eight years, removes from horticultural circles a well-known figure. In the course of his life he had come into notice as a high-class cultivator and successful exhibitor, as judge, valuer, committeeman; and in other capacities he lived and moved among his contemporaries till the close of his life. He is almost the last of those who occupied a seat on the Floral Committee of the Royal Horticultural Society when it was first formed in 1859, and he died one of its Vice-Presidents.

Of his early years but little appears to be known. He and his brother James succeeded, when young men, to the management of the business in the Lea Bridge Road, founded by their father, and under their management the firm became widely known for the cultivation of hard-wooded plants, and as exhibitors of specimen stove and greenhouse plants. At all the great horticultural exhibitions held in London during the past half century they were exhibitors. Specimen Pelargoniums of all sections they grew well; Azaleas were successfully grown and exhibited; and their encounters with Mrs. Laurence

took great interest in local matters, and was for a considerable period chairman of the Local Board. A few years since the rapid growth of the neighbourhood necessitated the transference of the business to South Woodford, where an entirely new nursery was formed, and where Heaths, Vines, Ivies, &c., in addition to a general stock, are the leading features. The business will henceforth be carried on by his son, Mr. John Finlay Fraser.

During the past year, Mr. Fraser was able to put in an appearance at the meetings of the Royal Horticultural Society; but he, except on one or two occasions, no longer sat at the committee-table. Having been widely known, his death will create a feeling of regret in the hearts of many who in the course of his long and active life had come into contact with him.

JOHN NUNNS.—Many of our readers will learn with regret of the death of this once well-known gardener, on the 15th of this month, at the age of seventy-one. The deceased, who had retired from the gardening world for some years, was for twenty-six years head gardener to Sir John D. Llewellyn, at Penllergare, near Swansea.

MARKETS.

COVENT GARDEN, JANUARY 25.

(We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.)

CUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s. d. & d.		s. d. & d.
Arum Lilies, dozen blooms ...	14 0-18 0	Narcissus (yellow) doz. bunches ...	6 0-8 0
Asparagus "Fern," bunch ...	2 0 2 6	— (double) ds. bch. ...	8 0-7 0
Carnations, per doz. blooms ...	2 6-5 0	— (white) doz. ...	8 0-4 0
Cattleyas, per dozen ...	15 0-18 0	Odontoglossums, per dozen ...	4 6-9 6
Eucharis, per dozen ...	8 0-10 0	Poinsettias, dozen blooms ...	15 0-18 0
Gardenias, per doz. ...	8 0-6 0	Roman Hyacinths, doz. bunches ...	9 0-12 0
Lilac, white, bunch ...	5 0-7 0	Roses indoor, per dozen ...	3 6-7 6
Lilium Barriall, per dozen blooms ...	10 0-14 0	— Tea, white, per dozen ...	8 6-7 6
Lilium longiflorum, per dozen ...	12 0-16 0	— Yellow, Perles, per doz. ...	8 6-7 6
— lancifolium album, per dozen ...	6 0-4 0	— Safrano, per doz. ...	2 6-3 6
— lancifolium rubrum, per doz. ...	8 0-4 0	Smilax, per bunch ...	8 0-6 0
Lily of Valley, per doz. bunches ...	12 0-24 0	Tuberose, per doz. blooms ...	0 9-1 0
Maidenhair Fern, per doz. bunches ...	4 0-6 0	Tulips, per bunch ...	1 3-2 0
Marguerites, p. doz. bunches ...	8 0-4 0	Violets, Parma, per bunch ...	8 0-12 0
Mignonette, dozen bunches ...	4 0-6 0	— dark (French), per doz. bcha. ...	2 6-4 6
		— (English), per doz. bcha. ...	4 0-5 0

FRUIT.—AVERAGE WHOLESALE PRICES

	s. d. & d.		s. d. & d.
Apples, in sieves:		Grapes, English,	
— Beaufort, behl. ...	6 0 8 6	— Alicantes, per lb. ...	1 2-1 6
— Blenheim, behl. ...	5 0-7 0	Grapes, Belgian ...	0 8-1 2
— Northern Greenings, per bushel ...	5 0-6 0	— Gros Colmar, Class A., pr. lb. ...	1 6-1 9
— Queenings, bus. ...	4 0-6 0	— Class B., pr. lb. ...	1 0-1 3
— Wellingtons, per bushel ...	6 6-8 0	— Muscats, Cl. A., pr. lb. ...	2 6-4 0
— Various, bushel ...	2 6-6 0	— Almeida, dr. lb. ...	6 0-8 0
— Nova Scotia, various, barrel ...	17 0-22 6	— barrel ...	21 0-30 0
— Baldwins, barrel ...	16 0-18 0	Lemons, Messina, 300 ...	12 0-14 0
— Greenings, barrel ...	16 0-18 0	— Palermo, case ...	6 0-7 0
— Golden Russets, barrel ...	25 0—	Lyches, Chinese, new, pht., 1 lb. ...	0 10 —
— N. Spies, barrel ...	20 0-22 6	Oranges, Denia, 420 ...	25 0 —
— Californian, cases, New Town and Bed. ...	6 0-10 0	— Blood ...	8 0 10 0
— Canadian Gldn. Russets, barrel ...	21 6 —	— Jaffa, case of 144 ...	9 0 10 0
Bananas, per bunch ...	6 0-10 0	— Mandarin, boxes ...	10-1 6
Chestnuts, per ag. ...	5 0-6 0	— Murcia, case of 240 ...	7 6 14 0
— Spanish ...	15 0—	— Valencia, case of 714 ...	13 0 16
Cobnuts, per lb. ...	0 7 1—	Pears, half cases ...	10 0 —
Crabapples, case ...	6 0-7 0	— Californian Easter Beurre, case ...	18 0 —
— American, per qt. ...	0 4 —	Pines, each ...	1 6-4 0
— Russian, keg ...	2 0 —	Sapucaia Nuts, lb. ...	1 0 —
		Walnuts, Naples, kiln-dried, per bush. ...	20 0 —

POTATOS.

Main Crop, &c., 70s. to 90s.; Dunbar Main Crop, 110s. Other varieties, 65s. to 85s. John Ball, 32 & 34, Wellington Street.



THE LATE RICHARD DODDRIDGE BLACKMORE.

(Reproduced by permission of Messrs. Sampson Low, Marston & Co., from a photograph by Mr. Fredk. Jenkins.)

and other leading exhibitors is a matter of history; as is also the incident of Mrs. Laurence purchasing from the Lea Bridge firm the whole of the collection of plants which defeated her's at one of the great Chiswick shows, and taking over May, the grower, also with the plants.

As one of the founders of the National Floricultural Society in 1851, Mr. Fraser remained connected with it as one of its leading censors until it was dissolved in 1859. His services were in great request as a judge, and as a valuer of horticultural stock he was, perhaps, almost without a rival; his high-minded integrity was acknowledged on every hand. The firm exhibited at all the Chiswick exhibitions up to the last in 1858; at the Regent's Park, at the Crystal Palace, and at some, at least, of the provincial shows of the Royal Horticultural Society. At the Great International Horticultural Exhibition held at Kensington in 1866, they were important exhibitors, staging, in addition to Pelargoniums, Azaleas, &c., twenty-four large specimen greenhouse plants, of which the names and dimensions were recorded at the time.

Some years ago the partnership between the brothers was dissolved, and the business was carried on by John Fraser. While at Leyton he

PLANTS IN POT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Azaleas, p. doz.	5 0-7 0	Foliage plants, var.,	
Arbor-vita, var. doz.	6 0-36 0	each	1 0-5 0
Aspidistra, p. doz.	18 0-36 0	Lily of Valley, each	1 2-3 0
— specimen, each	5 0-10 0	Lyopodium, doz.	8 0-4 0
Crotons, per doz.	18 0-30 0	Marguerite Daisies,	
Dracenas, var., doz.	12 0-30 0	per dozen	8 0-12 0
— viridis, per doz.	9 0-18 0	Myrtles, per dozen	6 0-9 0
Ericas, var., per doz.	18 0-36 0	Palms, various, ea.	1 0-15 0
Kuonymus, various,		— specimens, each	21 0-63 0
per dozen	6 0-18 0	Pelargoniums, scar-	
Evergreens, var.,		let, per dozen	8 0-12 0
per dozen	4 0-18 0	Poinsettias, p. doz.	18 0-30 0
Ferns, small, per 100	4 0-6 0	Primulas, per doz.	5 0-8 0
Ferns, in variety,		Roman Hyacinth	
per dozen	4 0-18 0	per doz.	10 0-12 0
Ficus elastica, each	1 6-7 6	Tulips, per doz.	1 6-2 6

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe,		Mint, new, Ch. Is.,	
per doz.	2 0 3 0	p. doz. bunches	6 0 —
— Jerusalem, per		Monks' beard (Barbe	
sieve	1 0-1 3	de Capucine), p.	
— Stachys or Chi-		bunch	0 4 —
nese, per lb.	0 5 —	Mushrooms, house,	
Asparagus, Sprue,		per lb.	0 8 0 10
per bundle	0 8-0 9	Onions, bags	5 0-6 0
— English forced,		— Bordeaux, boxes	8 6-4 0
per bundle	6 6 —	— picklers, in	
— Giant, bundle.	7 10-0	sieves	2 6-3 0
— Paris, Green,		— Valencia, cases	7 0 —
per bundle	6 0 —	— English, cwt.	6 0 6 6
— Spanish, budl.	2 0 3 0	— German, bags	5 0 —
Beans, Channel		— French	4 0 6 0
Islands, per lb.	2 0 2 6	Parsley, per dozen	
— Madeira, basket	2 0-3 0	bunches	1 0-2 0
Beetroots, new, per		— per sieve	1 0 —
dozen	0 6-1 0	Parsnips, per dozen	0 6-1 0
— in bush	1 3-2 0	— bag	8 6-8 6
Broccoli, Cornish,		Peas, New Green, lb.	0 6 —
crates	7 0-8 0	Potatoes, Old var.,	
Brussels Sprouts, p.		per ton	60 0-90 0
sieve	1 0-1 6	— Dunbar Main	
— per bushel	2 0-2 6	Crop, per ton	100 0-110 0
Brussels Sprouts,		— New Channel	
Top, per bag	1 0-2 0	Islands, frames,	
Cabbages, tally	5 0-7 0	per lb.	0 6 —
— dozan	1 0-1 6	— New French in	
— Savoys, p. tally	4 0-10 0	boxes, lb.	0 4 1/2 —
Carrots, English, p.		— Tenerife, in	
dozen bunches	2 0-2 6	boxes, cwt.	9 0-14 0
— good, cwt. bags,		Radishes, Long, doz.	0 10-1 0
washed	8 0-3 6	Radishes, round	1 3 1 6
Cauliflowers, dozen	1 6-3 0	Rhubarb, Yorks, pr.	
— Cornish crates	8 0 —	dozen bunches	1 3-1 6
— Italian, baskets		Salad, small, pun-	
of 18	3 0 4 0	nets, per dozen	1 3 —
Celeriac, per dozen	2 6 —	Salmon, bundle	0 4 —
Celery, red, roll doz.	8 0-16 0	Scotch Kale, bush.	2 0-2 6
Chicory, per lb.	0 3 —	Seakale, per dozen	
Colewort, p. bush.	1 6-2 0	punnets	12 0-16 0
Cress, doz. punnets	1 6 —	Shallots, per lb.	0 3 0 3 1/2
Cucumbers, doz.	6 0-12 0	Spinach, French,	
Endive, new French,		crates	8 0-3 0
per dozen	1 6 —	Spinach, Winter, per	
— Batavian, doz.	1 6 —	bushel	4 0 —
Garlic, new, per lb.	0 2 —	Sweet Potatoes, lb.	0 8 —
— per cwt.	14 0 —	Tomatoes, Canary,	
Horseradish, Eng-		deeps	2 6-5 0
lish, bundle	1 6 —	Turnips, per dozen	
— foreign, p. bdle	1 0-1 2	bunches	2 0-3 0
— loose, fine, doz.	1 9 —	— cwt. bags	2 6-3 0
Leeks, doz. bunches	1 6 2 0	Turnip Tops, bags	2 0 —
Lettuce, French,		Watercress, p. doz.	
Cabbage, dozen	1 0 —	bunches	0 9 0 10

REMARKS.—A fair supply of English Apples still come in, some of which are very good. Parsley keeps low in price. Onions are easier in price, with good supply; the last consignment of Cap's Plums realised per box 5s. to 9s. Stachys, or Chinese Artichokes, are now coming in.

SEEDS.

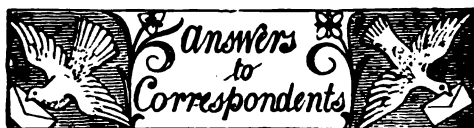
JANUARY 24, 1900.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Ford, Borough, London, S.E., report a thin attendance of buyers on to-day's market, with but few transactions passing. Meantime, there is an improving general inquiry for field seeds, and prices all round keep very firm. Alsyke, especially, exhibits increased animation. For Perennial Ryegrasses, the tendency of values is still upwards, whilst Imported Italian keeps steady. There is a rather better demand for Tares, and Rye is inquired for. Owing to the mild and unseasonable weather, the consumptive request for Blue Peas, Haricot Beans, and Spanish Lentils, is naturally restricted. Full prices are asked for Mustard and Rape-seed. The market for Bird Seeds calls for no remarks.

CORN.

AVERAGE PRICES OF BRITISH CORN (per imperial qr.), for the week ending January 20, and for the corresponding period of 1899, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1899.	1900.	Difference.
	s. d.	s. d.	s. d.
Wheat	37 0	36 0	- 1 0
Barley	27 11	25 8	- 2 3
Oats	17 1	16 2	- 0 11

(For remainder of Markets and Weather, see p. xii.)



ARALIA SIEBOLDI: Findlay Bros. The appearances are due to a check to growth, but of what this consisted we are unable to inform you with certainty. Perhaps root-disturbance after growth had begun.

ARUMS AND MARKET PRICES: H. B. These vary from day to day, and sometimes hourly. Much depends on the day and time of arrival, and the demand.

CAMPHER AS A PLANT STIMULANT: X. Y. Z., Sheffield. The substance finding a use in Japanese gardening; it has, doubtless, useful properties as a manure, and deterrent against insects infesting soils and plants. We know but little of its uses here.

"CONTINENTAL HORTICULTURAL JOURNALS:" N. B. Möller's *Gärtner's Zeitung*, Erfurt, has a large circulation. *Revue de Horticulture Belge*, published, 132, Rue de Bruxelles, Ghent. *Wiener Illustrirte Garten Zeitung*, published by Wm. Frick, K. und K. Hofbuchhandlung, Vienna, Austria.

CYPRIPEDIUM INSIGNE: C. B. Divide as soon as growth begins, spreading the roots out in the soil, which should consist of good fibrous peat two parts, live sphagnum-moss one part, a small quantity of charcoal, and silver-sand. Afford good drainage, press the soil firmly, and keep the crown of the root as high as the rim of the pot. Keep in a warm, shaded glasshouse till re-established, then inure them to a slightly cooler temperature. Afford water not too abundantly at the first, increasing the amount as the plants recover their health.

DAISIES IN BOWLING GREEN: D. W. Encourage a smothering growth of the grasses by using Watson's Lawn-sand, fish, or other manures. If but few Daisies exist, spudding them out might be advisable. If the turf is much infested, nothing short of digging the ground and re-sowing with the finer grasses will be of any use.

FURZE ON 5 ACRES OF LAND: H. W. C. You will find that seed sowing is more economical and satisfactory than planting. The land should be deeply ploughed and well harrowed, the seed being sown in drills and after covering, well rolled.

INSECTS IN MUSHROOM-BEDS ON ROOTS OF TOMATOES, &c.: E. P. The little glassy-white worms are not Tylenchii, but the larvae of a species of *Sciara*, and probably the *S. fucata*; but in the absence of the perfect insect, it is impossible to state definitely to which species they belong. Many of the larvae sent had pupated en route, which in due course will produce very small, swarthy, two-winged flies belonging to the order Diptera. The food of these larvae consists almost entirely of decayed vegetable matter. They often swarm in leaf-mould, dung, &c.; and *S. fucata* has been known to attack young Wheat plants. Those in your Mushroom-house were carried in with the manure; and those present at the roots of your Cucumbers and other plants, were probably introduced in the compost, which, judging from the sample submitted, contains a large percentage of decayed vegetable matter, such as these larvae would revel in. You may attract the larvae by inserting pieces of decayed Potato into the soil near the affected plants, and in the Mushroom-beds; and if the perfect flies are now appearing, fumigation would destroy them; but your safest course is to remove the affected soil and make a fresh start. R. N.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—May. 1, *Selaginella Wildenowii*; 2, *Polystichum angulare*; 3, *Nephrolepis tuberosa*; 4, *Asplenium lucidum*; 5, *Begonia maculata argyrea*; 6, *Begonia incarnata metallica*.—Lamb. 1, *Dieffenbachia nobilis*; 2, *Pittonia Pearcei*, *Codisium* (Croton), but which variety it is not possible to say by the poor specimen sent.—F. L. Stanhope Wardi aurea.

PARIS-GREEN FOR SPRAYING APPLE-TREES: *Viridis*. First application, before the buds start—important; second, just before the flowers open; third, soon after the latter fall; fourth, ten to fifteen days later; fifth, ten to fifteen days later if spot disease is severe; and for borar at end of June. Formula: Paris-green, 1 lb.; lime, 1 lb.; water, 200 gallons.

PEACHES FOR FORCING: *Old Subscriber*. Alexander, Early Rivers, Early Grosse Mignonne, Doctor Hogg, Grosse Mignonne, Noblesse, Bellegarde, Stirling Castle, and Albatross. These ripen in the order of their names.

POMEGRANATE NOT FLOWERING: C. B. In your latitude (Sheffield) the plant should not be placed out-of-doors in the summer, but be afforded a warm situation in the greenhouse or intermediate-house, not shading it at any time. Look to the roots, and afford new soil in March, and ample drainage. Pot firmly, in loam, peat, leaf-mould, and sand. The plant being deciduous, should be afforded a good long rest in a cold place, seldom affording water in the winter. Keep the shoots fairly thin, cutting out all those too weak to bear flowers, leaving short snags to form spurs. Keep it syringed well whilst growing. The sort of pruning afforded the Plum and Apricot suits the Pomegranate.

POND CLEARING: J. S. The stuff is almost valueless, excepting when dry, as a dressing for poor grass-land. Being destitute of all fibre, roots, &c., it sets together very closely when used alone, and is quite unsuited to the growth of the *Rhododendron*.

REDUCING THE HEIGHT OF PALMS: X. There is nothing to be done, if you cannot sink the receptacles in which they are growing into the floor of the house. They might live if you headed them back, but their beauty, even should they throw out growths, would never be recovered.

ROSES, H.P.'s, DOING WELL ON THEIR OWN ROOTS: B. F., *Vik and Vadsbro, Sweden*. A. K. Williams, Anna Alexieff, Baron Bonstetten, Baroness Rothschild, Baron Prevost, Beauty of Waltham, Black Prince, Boule de Neige, Dr. Andry, Duchesse de Vallambrosa, Duchess of Bedford, Duchess of Norfolk, Etienne Levet, Fisher Holmes, General Jacqueminot, Jules Margottin, Lady of the Lake, Louis van Houtte, and many other hardy varieties.

TOPPING AN ARAUCARIA EXCELSA: C. B. With a sharp knife partially sever the leader at any desired height, and let it hang down by a strip of wood and the bark. When in the course of time the wound makes a callus, it may be taken off; insert in a pot in sandy soil, and place in a warm case to make roots. If the callus becomes black, place the cutting in fresh soil.

VERMOREL'S SPRAYING SYRINGES: H. B. Scan our advertising columns, or make application to some horticultural sundriesmen, as Osman, Anderson, and Richards, whose addresses are often to be found in our columns.

WEBS ON THE BARK OF A TREE: P. Murray Thomson, Kilpunt, Broxburn. The conspicuous webs in the crevices of the bark of the Laburnum are not scales, but are the silken coverings made by female Psocids to protect their eggs. These insects are not injurious to the trees; they feed chiefly upon the Protococci on tree trunks. R. N.

COMMUNICATIONS RECEIVED.—P. W.—A. H.—A. C.—S. A.—T. C.—W. S.—A. C. F.—R. P. B.—G. B. M.—H. G. B.—G. H.—H. W. W.—E. C.—W. Grossman's letter has been forwarded to its destination.—G. F.—S. H., Lincolnshire.—Lancashire.—Nemo.—F. J.—De Graaf Brom.—R. F.—E. S. (many thanks).—Old Subscriber.—Buller II.—J. K.—J. S. M.—Ed. R.—Young Gardener.—S. H., Lincoln.—Wild Rose.—D. T. F.—A. O'N.—H. C.—A. H.—Subscriber (will try to discover cause of delay).—E. B.—G. G.—J. K.—H. H. T.—R. D.—J. H.—W. T.—G. B. M.—W. R.—A. C. F.—G. M.—C. T. D.

Continued Increase in the Circulation of the "GARDENERS' CHRONICLE."

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

TREBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is reserved for reference in all the principal Libraries.



THE Gardeners' Chronicle

No. 684.—SATURDAY, FEB. 3, 1900.

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THE LONDON BOTANIC GARDEN.

FOR more than two centuries Chelsea and its vicinity has been celebrated for its gardens—botanic, nursery, market, private, and tea-drinking. It is still one of the Meccas of floriculture, and its Apothecaries' Garden remains to remind one of a time when the city was far distant, and Chelsea itself a rural hamlet. The private gardens have long since degenerated into back-yards, where Mignonette and Geraniums lead a brief and sooty existence of a few weeks' duration; and the market-gardens have long since been elbowed some miles further out into the suburbs. The history of Chelsea and its various gardens would fill a fairly large volume, of which a very considerable portion would be taken up with Cremorne Gardens and its manifold frivolities.

Apart from the gardens of the Society of Apothecaries, no phase in the earlier history of Chelsea Gardens is more interesting than that of the London Botanic Garden, which William Salisbury successfully inaugurated in 1807, and which was in existence for about a quarter of a century. It is not easy to realise, in visiting Chelsea to-day, that men by no means very old remember the place when it was a pleasant retreat, with a distinctly countrified air about it. The penny 'bus and the underground railway have long since robbed it of its rural character. The rapid merging of Greater London into London proper has been the immediate cause of the obliterating of landmarks and historical spots without number, and among these the London Botanic Garden.

Of William Salisbury, the man who planned

and laid out this remarkable place, very little is known. In the *Gentleman's Magazine* of 1810, in an article describing his Botanic Garden, he tells us that he was in 1792 a pupil of Curtis, whom he joined as partner in 1798. His first publication, *Hortus Paddingtonensis*, was an exhaustive catalogue of plants cultivated in the garden of John Symmons, F.R.S., at Paddington House, to whom Salisbury was gardener, and to whom the book is addressed. The preface is dated September 25, 1797, and the writer speaks in very high terms of his employer's liberality and of his "generous bounty," so that the catalogue was doubtless published at Mr. Symmons' expense. The catalogue is an extraordinary one, and the garden probably could have claimed to contain a greater variety of plants than any other private establishment in the kingdom. Close upon 4800 species and varieties of plants and trees, English and foreign, are alphabetically enumerated, first by the Latin and then by the English name, followed by an initial to indicate whether the particular plant is hardy, or stove, or greenhouse, and then the signs of the plant's duration. Curiously enough, my copy of this striking memento of a Paddington garden of a century ago is bound up with the second edition of James Donn's *Hortus Cantabrigiensis*, 1800, from which it would seem that the Botanic Garden, Cambridge, claimed to possess only about 5400 different species and varieties.

Salisbury left Mr. Symmons soon after his elaborate catalogue was finished, and became a partner with William Curtis (the well-known nurseryman, and founder of the *Botanical Magazine*), at Queen's Elm, Brompton. Curtis died in July, 1799, and Salisbury (owing to the lease of the Brompton Garden being on the point of expiring) removed soon after to Cadogan Place, Sloane Street; and it was here that he formulated and carried out the London Botanic Garden. The idea itself was not original, for Curtis had started a similar institution at his nursery garden near the Queen's Elm Turnpike, the subscription being one guinea per annum, or two guineas, which entitled the subscriber to seeds, roots, and so on, up to a certain value. Salisbury doubtless succeeded to Curtis's library of botanical books and extensive collection of drawings, and these, with the great variety of plants, formed the nucleus of the new gardens.

The London Botanic Garden consisted of about six acres of ground, so arranged that a person could walk nearly two miles without entering the same path twice; the whole forming, apart from its scientific arrangement, a "delightful promenade," as Faulkner states in his *History of Chelsea* (1829). The scope or aim of the garden is fully explained in the preface to Salisbury's *Botanists' Companion*, which the author describes as an introduction to the knowledge of practical botany and the uses of plants either growing wild in Great Britain, or cultivated for the purposes of agriculture, medicine, rural economy, or the arts. The book was published in two volumes by Longmans in 1816. The admission to the garden and library was one guinea for twelve months. During summer there were, on Mondays and Thursdays, lectures written by Salisbury himself, on botanical topics; and about twelve excursions were made within three months to such places near London "as are known to produce the greatest number of plants." To attract those who cared for neither lectures nor excursions, the proprietor

arranged for concerts on Tuesdays and Saturdays, from May to September.

The *Botanists' Companion* is, for the time, a really noteworthy compilation, and the arrangement is on a similar plan to that of Graeber's *Catalogue* (1789), and Galpine's *Compendium* (1806), and is one of the most comprehensive works of its kind which had appeared in England up to 1816.

A very considerable part of Sloane Street, between the Square and Cadogan Place, was taken up by Salisbury's Botanic Garden, and for some years it was a very fashionable promenade. In 1820 the property changed hands, the new owner being a Mr. Tate, who altered the place considerably, and converted it into a nursery. The London Botanic Garden, however, during its existence, absorbed a number of interesting collections of both living and dried plants. G. Ackerman presented a number of new and undescribed plants from South America, including *Echeveria grandifolia*; Capt. Paterson, of the East India Company, gave a choice collection of Chinese plants; a Mrs. Brown, of Cadogan Place, sent some Ceylon plants. It also absorbed Bullock's extensive collection of plants formed in Mexico; and many rarities came from Mr. R. P. Staples, whose collection of Cacti is described in the *Philosophical Transactions* by Mr. A. H. Haworth. Other benefactors included the Hon. and Rev. W. Herbert of Spofforth, and the Right Hon. Lady Amherst. When the London Botanic Garden was in its prime, a plan was drawn up and engraved for the *Gentleman's Magazine* (to which Salisbury was an occasional contributor), and published in the issue for August, 1810. This plan was republished as a frontispiece to the first volume of Salisbury's *Botanists' Companion* six years afterwards.

It is not known for certain—or, at all events, I have been unable to ascertain—when the London Botanic Garden ceased to exist. Probably, as is generally the case, it was encroached upon bit by bit. It was described by Faulkner in his *History of Chelsea* in 1829, but it is not alluded to in any way by J. C. Loudon in the edition of his *Encyclopedia of Gardening*, which appeared in 1835. As Loudon had lived at Bayswater for many years when Faulkner wrote his book, the London Botanic Garden must have been known to him, and if it then existed, would have received due notice in the *Encyclopedia*. It is, however, rather a curious fact, that Salisbury's publications are not mentioned in either the *Encyclopedia* or in the *Hortus Britannicus*. Salisbury died in 1823.

Early in 1816, Salisbury published, in addition to the elaborate *Botanists' Companion*, already mentioned, a small book of about 200 pages (through Longmans), entitled, *Hints addressed to the Proprietors of Orchards, and to Growers of Fruit in General*. It consists largely of observations made during the previous summer in a tour through the cider counties of England. The author urges certain improvements in the methods of culture, and insists that no more fruit-trees should be grown on any farm than "can be allowed the proper management necessary to promote the ends for which they are intended." Two interesting points are revealed in the course of this little book: first, that several farmers near Petworth "have this season paid their rents by the produce of their orchards;" and secondly, that the author had just recently purchased, for the sake of propagation, the stock of new fruit-trees raised by Mr. Knight at Elton, near Ludlow.

After leaving the London Botanic Garden, Salisbury wrote one pamphlet, *The Cottagers' Agricultural Companion*, 1822, which ran into a second edition in the same year. This little book reveals the fact that the author was still in business at his "nursery ground" at Brompton, Middlesex. In his pamphlet, Salisbury, in an address to the proprietors of landed estates in Great Britain, enlarges upon the necessity of improvement in the education of the labourer and his wife. This, he maintains, may be effected by inducing them to cultivate plots of land on what is now known as the allotment system. Salisbury especially commends the system, "adopted with the best effect" at Newnham under the Countess of Harcourt. His *Cottagers' Agricultural Companion* had an extensive circulation, and it probably did much good; he contemplated, in furtherance of this amelioration of the farm labourer's lot, a pamphlet on the culture and management of bees, but he apparently did not live to finish the work. Although his name is not perpetuated in the usual manner, he undoubtedly rendered botany and horticulture very considerable services, and worthily sustained, as a practical gardener, the good fame of his tutor and partner, William Curtis. *W. Roberts.*

SOPHRO-LÆLIA × MARRIOTTIANA.

On several occasions Sir Wm. Marriott, The Down House, Blandford (gr., Mr. Denny), has exhibited examples of his pretty hybrid *Sophro-lælia*, obtained by crossing *Lælia flava* and *Sophranitis grandiflora*, and some variation in the dark yellow colouring of the flowers has been remarked. At the Royal Horticultural Society's meeting on January 9 last, a plant of it showing a still more remarkable variation was staged, and from it our illustration (fig. 20) was prepared. The sepals and petals were yellow, with a flame-like series of orange-scarlet flakes, extending from the base of each segment to the well-defined, clear, yellow margin. The lip was yellow, with dark reddish-orange markings, having some yellow lines extending from the base. The whole flower, in colour, presented the appearance of one of those yellow and orange flowering *Cannas*, now so popular in gardens.

NURSERY NOTES.

CHINESE PRIMROSES, ETC., AT READING.

A LARGE exhibit at the Drill Hall, on January 9, afforded a foretaste of the display of Chinese *Primulas* Messrs. Sutton & Sons have now in bloom at Reading. It was a most interesting collection of plants, and in one or two instances particularly, varieties possessing flowers of new shades of colour attracted much attention. Since then, however, we have had the opportunity to inspect the entire collection "at home," and it would be very difficult indeed to adequately describe the lovely effect of the thousands of plants grouped in colours, in the many span-roofed houses at the Portland Road Nursery. And in passing, a remark may be made upon the excellence of the houses just mentioned. How admirable they are for the cultivation of *Primulas*, *Cyclamens*, or other dwarf-growing, partially delicate plants, that, blooming at a season of the year when the days are short, and the weather variable, require all the light and sunshine that may be obtainable; and fresh air occasionally, without the injurious accompaniment of cold draughts! The task of many a gardener, who tries his utmost to successfully grow and flower batches of these plants, and winter-blooming *Pelargoniums*, would be materially assisted did means permit of his acquiring these first essentials. The Reading plants are grown for the purpose of producing seeds, and it has been found that small

plants in 5-inch pots, or even less, are best suited to this purpose. Accordingly, the seeds are not sown, we believe, until midsummer has been passed, and if there are no "specimen" plants, with numbers of flower-spikes, and large foliage, they are little missed, for in proportion the younger and smaller ones flower just as freely and strongly, and are each as perfect as the imagination could desire.

In the work of developing such flowers as the *Primula*, the processes of selection, cultivation, and cross-fertilisation are all great factors. Which is the most important matters little; certain is it, that once cross-fertilisation is practised, selection becomes essential. Both these processes may be observed in operation at Reading: here a flower has been fertilised with pollen from a flower of a distinct character, but possibly only in the matter of colour; there, are a few plants withdrawn from a well-known strain. They have shown an improvement over the rest of the same strain,

preserved for years, it was noticeable that varieties are kept so true from seed that little difference in shade of colour even could be detected in the large batches of plants.

CHOICE FIXED VARIETIES.

Speaking now of single-flowered varieties, there are *Snowdrift*, *Pearl*, *Purity*, and *Royal White*; the first-named is the earliest to bloom, and has many good qualities, its pure white flowers and fern-like foliage being very pretty. *Pearl* is rather later, but is one of the best of growers, and has been a favourite for nearly twenty years. *Royal White* has dark foliage, and is therefore distinct from the others of this colour; its flowers are large and beautifully fringed. Of varieties producing flowers other than white there is an ever increasing number, and in the known sorts the strains have been improved by intensifying the colours. *Brilliant Rose* was very noticeable as



FIG. 20.—SOPHRO-LÆLIA × MARRIOTTIANA:
COLOUR YELLOW AND ORANGE-SCARLET.

and it is from such that seeds may be obtained to maintain the strain at its present standard of quality, or possibly raise it in a little degree above any previous condition.

Cultivation, the other factor in development, is often helpful, but sometimes a little troublesome. To cultivation is due, to a very large extent, the evolution of the semi-double type from single-flowered varieties, and the gain has been an immense one; but its influence in some directions, for instance upon the "star" or "stellate" section, is to bring these free-flowering, graceful-habited plants, that recently have been accorded considerable popular favour, more and more into likeness to the florists' type, and in order to preserve the simple form it is necessary to resist or neutralise the influence cultivation would naturally exert upon it. Thus is the work of maintaining and developing a collection of *Primulas* pursued. In one section or "strain," a certain characteristic is encouraged; in another lot of plants the same characteristic is rigidly excluded. There are thus endless balancing of influences, directing of tendencies, and shaking up of possible latent forces.

As we looked over the strains that have been

being true, and in every respect desirable. *Crimson King* also is excellent; its fine flowers are unusually fimbriated, and there is a dark, narrow circle round the centre. A fern-leaved form of this variety has just been prepared for distribution. *Brilliant Ruby*, which superseded the old *Ruby King*, is a first-rate red-flowered *Primula* of dwarf habit, but needs some little encouragement in order to get the blooms thrown well above the foliage. Then there are *Reading Pink*, which flowers moderately early; *Gipsy Queen*, one with bizarre-like flowers, white, splashed with rose; *Rosy Queen*, a pretty variety, with fern foliage; *Reading Scarlet*, and others in the single-flowered section, of which we will only further allude to those known as "blue." The best of these is *Reading Blue*, having plain foliage, and very fine flowers. One known as *Sutton's Blue* has fern foliage, but is otherwise hardly so good; and a new one obtained from crossing the *Reading Blue* upon a white variety, is the *Cambridge Blue*—this is of an exceedingly delicate tint, and with the very light green foliage has a somewhat æsthetic appearance.

The semi-double varieties appeared beautiful.

They flower freely, are capable of reproduction by seed, and though the flowers are not of the same quality as the old double White, they are nevertheless useful for button-holes and spray-making. There are varieties all true to colour in pink, scarlet, carmine, white, crimson, blue, salmon, and carnation flaked. The Carnation flaked semi-double is a very popular variety, one of the strongest growers, and an abundant bloomer. A new stock of this has been obtained by crossing again with Crimson King. The flowers are spotted rather than flaked, and the spotting is very free. It is only recently that a salmon tint has been produced by the doubles, and we are not sure that it is ready for distribution. But it will be very highly appreciated when generally known, as the shade is perfect.

habit of the pyramidalis strain to acquire only part of the excellence in flower possessed by the florists' type.

THE MOST RECENT NOVELTIES.

As typical of the best of the novelties, our artist has reproduced in fig. 21 flowers and foliage of "The Duchess," shown at the meeting at the Drill Hall above referred to, when an Award of Merit was recommended to the strain. The cross was one of Crimson King and Pearl, and this blending has resulted in the charming seedling variety. Its flower-stem is strong and erect, flowers large and of much substance, having a yellowish centre, and white, profusely fimbriated petals, but around the eye is a starred ring of intense rose, which to some degree suffuses the white. We saw other novelties from this and similar crosses that will be certain to

THE CYCLAMENS

were not at their best at the time of our visit, but though their freshness had been partly lost, there were hundreds of plants with a crop of flowers. Most of the varieties are well known. Of Whites, for instance, Butterfly we have seen again and again acquitting itself with credit; its flowers are very showy. The "Giant" White is of another character, its flowers are more regular, prim, and proper, but equally good. Then there are strains to colour, such as Rose, Cherry Red, Crimson, Purple, Pink, &c. But surpassing all of these latter in distinctness are the varieties Vulcan, an exceedingly rich crimson; and Salmon Queen, a Cyclamen that may be identified in any collection possessing the variety. We have not seen another so distinct a Cyclamen of this colour. Messrs. Sutton & Sons are very satisfied that they have just acquired giant forms of these two varieties, but we suppose they will not be ready for distribution at present. Each of them, though excellent in colour, has needed rather a stronger habit, larger flowers, and stems that would carry them well above the foliage.

We can hardly conclude such a note as this without mentioning the enthusiasm of the late James Martin, under whose care these plants were for so long. Fortunately, Mr. McDonald, who has succeeded to the charge, had worked side by side with Martin for a great number of years.

ORCHID NOTES AND GLEANINGS.

LÆLIA ANCEPS AT ROSEFIELD.

IN Mr. De B. Crawshaw's gardens at Sevenoaks, so ably managed by his gardener, Mr. Sidney Cook, Odontoglossums have been the leading feature for some years, and the collection is rich in many specially-named varieties of *O. crispum* and other species. The whole of the plants in the four houses devoted to them are in very fine condition, and a large proportion of them are producing very strong flower-spikes, though but a few are yet in bloom. Some of the plants have been acquiring increased vigour for many years, one example of *Odontoglossum crispum*, for instance, since the year 1880. A noticeable feature about both the houses and the plants, and one which gives a clue to their successful culture, no doubt, is that all are kept scrupulously clean.

The second specialty at Rosefield, and the one which is making the best show of flowers at the present time, is *Lælia anceps*, and of that species there is a very interesting collection of named varieties. Some of the best of them form a pretty group at one end of a curved span-roofed house, which seems to suit the plants perfectly, though the greater part of the plants were still in bud at the time of writing.

For general garden purposes, no doubt the easily-procurable good ordinary type of coloured *Lælia anceps*, with the now plentiful white *L. anceps Stella* and *L. anceps Sanderiana*, are sufficient; they are free-flowering and showy, and answer most purposes. But to form a collection of many-named varieties is not an easy matter, as such forms often have to be increased by divisions from the original plant, and the difficulty of this is only known to those who have undertaken it.

The plants in Mr. Crawshaw's collection are in admirable condition, and well furnished with flower-spikes, but even in his skillful hands, not all the plants can be made to bloom. Several plants of one of the earliest of the importations of white *Lælia anceps* have never yet bloomed in this country, although those of other importations gave no trouble in that respect. The form alluded to, with its long, thin, Schomburgkia-like pseudo-bulbs, will no doubt be recognised by many growers who have had similar experience of it. In the centre of the group, side by side, are two very finely-coloured and related forms, viz., *L. anceps Chamberlainiana*, and *L. a. Crawshayana*. A

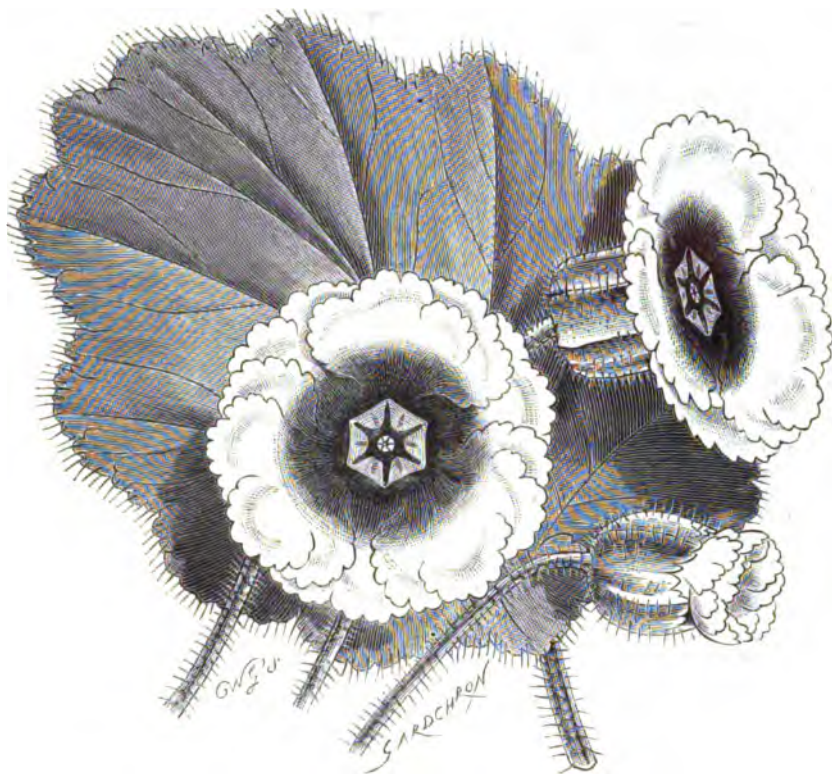


FIG. 21.—NEW PRIMULA, "THE DUCHESS": COLOUR WHITE, WITH DEEP ROSE CIRCLE AROUND YELLOW EYE.

The giant strains were not yet fully in flower, but there are giants in most of the colours, that is, varieties that are grosser in all their parts, but produce in consequence fewer leaves and fewer flowers than ordinary strains.

The "star" or "stellate" Primulas quite deserve recommendation. They are so free-blooming, and their graceful, branching, pyramidal habit gives to them much effect as winter-flowering plants for decoration. The flowers are only small, have no fimbriation, but merely a wedge-like notch in the centre of each petal, yet are the plants so bedecked with them, that they are exquisite to behold. There is the white form and a pink variety, and a recent lilac-tinted one. An improved white on very dark foliage was admired. In addition, there are varieties with new shades of colour, and others more or less intermediate between the type and the florists' varieties. The latter are the least satisfactory, because they forfeit the charming

command admiration. Several of these resembled greatly the Duchess itself, but were even more delicate, the colour being softer. There were flowers of magenta colour, red, vermillion, and a purple or plum-blue, and generally the eye is yellow. The process of "selection" and "fixing" has to be applied to these, and the results should be most gratifying to lovers of the Primula. Among the novelties we should perhaps include General French, a semi-double variety, also given an Award of Merit by the Royal Horticultural Society on January 9; it represents the best crimson semi-double up to date, and is most vivid.

Contemporary with all the newer varieties, we noticed a fine batch of the old white single-flowered alba magnifica, very true in strain, and flowering with abundant freedom. The most useful, but rather dangerous, *P. obconica*, made another house very gay with its flowers of quite a different type.

glance reveals the main difference, for the former has a broader front lobe to the lip, while the hue of the latter is a slightly darker purple-crimson. Perhaps the best and most distinct is *L. a. Amesiana*, "Crawshaw's variety," illustrated in the *Gardeners' Chronicle*, January 22, 1898, p. 59, and which has always been much admired when shown. *L. a. Mrs. De B. Crawshaw* is a very handsome dark-coloured variety, characterised by its rich and almost entirely claret-crimson lip, in which but little yellow is visible at the base.

Among the white varieties in flower, two plants of the original *L. anceps alba*, one of the earliest albinos of typical *L. anceps*, appears to advantage, its white flowers with a yellow disc, and minus the dark markings on the side-lobes of the lip seen in other white forms rendering it quite distinct, and easily recognisable. Among others, *L. a. Stella* and *L. a. Sanderiana* are very effective; while of the rare things not in bloom were noted a plant of the true *L. a. blanda*, the best variety of *L. a. Hilliana*, with four spikes; *L. a. Rosefieldiense*, *L. a. Williamsiana*, a plant of *L. a. Dawsoni* from the original stock, and many other good forms. Arranged beside them were *Lælia albida*, with a pale yellow tint, and a very handsomely-coloured form of it near to *L. a. Stobartiana*, and some plants of *L. Jongheana* in bud. In the same house are a number of plants of *Cattleya Warscewiczii*, imported a good many years ago, and as yet unflowered, like the unproductive form of white *Lælia anceps* alluded to above.

Suspended on one side of the house are a number of hybrids, the result of interesting crosses with *Lælia anceps*, and representatives of other genera (in one case *Sophranitis grandiflora*). All of these somewhat closely resemble in growth *L. anceps*, as they have done in former crosses. Among other species in flower were some very pretty varieties of *Odontoglossum Rosii majus*, one with the inner halves of the petals densely spotted with dark rose spots, being specially distinct.

All the plants are in excellent health, and the rare varieties are equal in vigour to the ordinary and as yet unflowered forms.

MARKET GARDENING.

CODIÆUMS (CROTONS).

THESE are now largely grown for market-sale. In establishments where *Codiæums* are made a specialty of, their brightest colours are fully developed, and it is found that most varieties will withstand exposure, provided that they are not taken from a high temperature whilst the leaves are young and tender. We have seen *Codiæums* used with good effect in groups of *Chrysanthemums*, and although the association perhaps is not a perfect one, it is difficult to obtain bright foliage from greenhouse plants; and when the effect is desired for a short time only, it is not necessary to confine oneself to plants which would naturally grow in the same climate. *Codiæum* leaves are also very effective for use with cut flowers, and for a variety of such purposes. Those varieties that become a bright red colour are most valuable, but others that are bright yellow when highly coloured are much appreciated.

Culture.—The most important point in their cultivation is to secure strong, well coloured tops as cuttings. This can only be done by growing the stock plants under the most favourable conditions. They must be kept free from red-spider and thrips, and other insect pests. Frequent examination is necessary to prevent the plants from becoming infested before it is noticed. The bulk of the propagating may be done during the winter months, but it should not be confined to this period. The system of "mossing" is recommended, as much larger plants may be thus established. Cut the stem half through and split it a little way up, putting in a wedge to keep the halves apart; or, instead of cutting the stem, pierce it through with the point

of a sharp knife, and insert the wedge. Then bind it up with sphagnum-moss and sand, and keep it moist. Roots will be produced before very long, and the tops should then be removed and potted-up into a light sandy compost. Place them for a time in a close propagating-pit to become established. If such tops are taken at different intervals it will not weaken the stock-plants so much as taking them at one time. In the case of plants having a single stem, the tops should not be taken until a good length of hard stem can be left.

In taking cuttings, it is necessary to keep them fresh. They should be taken off and put into a close-pit, having a good bottom heat, with as little delay as possible. Young plants may be grown on in a high temperature, and afforded plenty of atmospheric moisture and exposure to the sun's rays, but after they have grown well a more moderate temperature and less moisture will enable the plants to finish off well. Although *Codiæums* in active growth delight in a high temperature, they will withstand cold much better than is generally supposed. During the autumn and early part of the winter, specimens may be kept tolerably cool. They will then start into growth much better in early spring.

Varieties.—It is hardly necessary to enumerate these. The older sorts, such as *Queen Victoria*, *Majesticum*, and *Evansianum*, are still among the best. *Mortfontainensis* and *Thomsonianum* are worth growing in large quantities, as they always colour well, and make good plants; the same may be said of *Countess*, *Lady Zetland*, and *Prince of Wales*. *Reidii* and *Emperor Alexander III.* are fine varieties for autumn use. For market work it is better to start with a limited number of reliable sorts, and those who take up their culture generally find opportunities for acquiring sorts most suited for their purposes. *A. H.*

MELONS.

Good Melons always command a ready sale in large towns during the summer and early autumn months, and especially so in London during the time Parliament is sitting. Sow the seed singly in 3-inch pots three-parts filled with fine loamy soil and short manure (free from worms), at the rate of three-parts of the former to one of the latter, covering the seed with a little of the same mixture. Stand the pots on a board placed on the hot-water pipes, and cover them with a few squares of glass, afterwards giving sufficient tepid water to keep the soil uniformly moist. This is necessary throughout the whole period of the plant's growth. When the plants appear through the soil, remove the glass and transfer them to a position near to the roof-glass, and a few days later top-dress with some of the same kind of warm compost as that in which the plants are growing, pressing this gently together, and being careful not to touch the stems. Good free-growing varieties which are noted for the size, handsome appearance, and fine quality of the fruit which they produce with perfect freedom under ordinary treatment, should be grown. *Carter's Earl's Favourite* and *Blenheim Orange* possess the above-mentioned qualities in a marked degree. This I say from a long experience in the culture of both varieties.

For the production of early Melons a lean-to house, facing due south or south-west, and efficiently ventilated, is undoubtedly the best, seeing that not any of the glass area is exposed to the biting north winds. However, I shall confine my remarks to low, span-roofed houses, this being the description of house generally erected by market gardeners. The glass and wood-work having been washed with soapy water, and the brick-work with hot lime-wash, proceed with the formation of the hillocks. These may be made at intervals of 2 feet and at 1 foot from the wall for the entire length of the house on either side of the central pathway. The mounds, or hillocks, should be about 15 inches deep and 2 feet wide at the base. The best soil at command should be employed as a rooting medium, and one-third or

more, of horse-droppings or peat-manure, according to the natural fertility of the soil. Lime-rubble may with advantage be added to the above-mentioned ingredients in the proportion of one-fifth of the whole, if easily obtainable. The compost should be warmed by putting it into the house or houses at least three days before being brought into contact with roots of the plants. When the little plants have made two or three rough leaves, they should be transferred one to each hillock, making the soil quite firm about them in planting, and afterwards affording tepid water to settle the soil. Put a small stick to each plant for support, and secure it to the first wire of the trellis. Do not stop the leading shoots until they have nearly reached the top wire of the trellis, the object being to obtain an equal set of fruit, and an even distribution of it over the plants. This may be achieved by pinching out the first flowers that show on the laterals proceeding from the base of the individual plants, and afterwards trained to the first set of wires. Thus treated, they will produce side shoots from the base of each leaf-stalk along the entire length of the stem, and in their production the latter will thicken considerably. Superfluous growths should, however, be pinched off at one joint from the main stem. Train the shoots forming the plants at about 15 inches from one another on either side anglewise, and when they have made two or three joints of growth, stop them. When the flowers are open, fertilise them in the ordinary way with the small (male) flowers about mid-day, when the pollen is dry. Stop the fruit-bearing shoots at one joint beyond the fruit, and when it can be seen beyond doubt which fruits are going to swell, remove all of the superfluous ones—leaving from five to seven of the best and most even-sized fruits upon each plant.

Seven fruits will be none too many for ordinarily strong-growing plants to ripen. All superfluous growths and flowers appearing after the fruits have begun to swell should be kept persistently pinched out, so as to avoid anything approaching crowding of the shoots, and needless exhaustion of the plants. Damp the plants over-head and the house generally with tepid water, morning and afternoon on bright days. Ventilate somewhat freely during favourable weather to secure short-jointed growth. As soon as the roots push through the sides of the hillocks, add a layer of the same kind of compost as that in which the plants are growing, a couple of inches thick, and continue to make such additions until the intervening spaces are filled to within an inch or so of the top of individual hillocks, thereby preventing the possibility of the stems of the plants and the soil immediately about them becoming too damp by the lodgment of water.

Very little moisture should be distributed in the house when the plants are in flower, or when the fruits are approaching maturity. A minimum night temperature of 65° to 70° should be aimed at, and 5° higher by day, with fire-heat, running the temperature up to 85° with sun-heat, air being given at this point when the fruits are swelling, running the temperature up to 90° or 95° when closing the house, and distributing plenty of tepid water over the plants, walls, and pathways, same time. Should aphid effect a lodgment on the plants, fumigate in the evening with XL-All vaporising compound. When the Melons have become nearly full-grown, they should be supported by two cross-bands of matting secured to the trellis. When the Melon crop has been taken, the house can be prepared for, and planted with, Tomatoes for a late crop. *H. W. Ward.*

THE ROSARY.

THE present is a good time to examine the Rose-bushes, and note any blanks caused by frost, old age, and so on. On looking over our own, I do not find so much harm from frost as was feared after the spell of very sharp weather experienced in December. The majority of the plants have well-matured wood,

and in many instances, especially among the Hybrid Chinas and Bourbons, the buds are pushing into growth. No time should be lost in completing the

of temperature so common at this season. Under glass there are insect pests to contend with as soon as the days commence to lengthen. Early measures

upon fine days, but let it be early, that the foliage may become fairly dry by night.

Very many growers afford too much ventilation to Roses when in early growth. Far better is it to regulate the temperature without this and so avoid draughts, which are certain to cause mildew, and more or less to check the growth at a most critical time.

Soils for Roses.—All lovers of the Rose would do well to get the little treatise upon *Soils for Roses*, issued by the National Rose Society; although this does not tell us just what is the best soil, it gives most valuable hints.

It may interest readers of the *Gardeners' Chronicle* to know that upon Christmas Day, quite a nice bunch of flowers of Reine Marie Henriette was cut from the open here. This is a grand old climber Rose, and when allowed to grow at will it is seldom out of flower from the end of May until sharp frosts arrive. The hips upon the hybrid seedling Briars are still most showy. In one warm corner, and where a few plants are used to hide a low building containing a steam-boiler, the Sweet Briar is bursting into leaf sufficiently to draw attention by its perfume. Seldom have the buds worked during the previous summer looked more promising than those in this neighbourhood at the present time. Whether upon the many varieties of dwarf stocks or standard Briars, it is the same. *A. Piper, Uckfield.*

THE ABYSSINIAN BANANA, MUSA ENSETE.

WE are indebted to the Director of Kew for the photograph of a bunch of fruits of *Musa Ensete*, reproduced in fig. 22. The plant has been represented in the pages of the *Gardeners' Chronicle* on several occasions, notably in 1881, vol. xv., p. 435; where two very fine specimens are shown in a view of Jamaica scenery; and in a supplement to the issue for December 8, 1894, where it is shown growing in the open air in the garden of Mr. Howard Fox, at Rose Hill, Falmouth. Flowering examples may now and then be seen in the houses at Kew. The bunch of fruits now figured was forwarded to Kew by a Covent Garden agent, who had received it from the Azores as a "peculiar Palm fruit, which might be obtained in quantity from that island." The diameter of the bunch was 12 inches. The fruits were not mature, consequently they did not contain the large seeds which this species generally produces abundantly. In this respect, and also in the fruit being coriaceous, dry, and inedible, *M. Ensete* differs from the Banana proper, *M. sapientum*. The soft inside of the "stem" (really the folding bases of the leaves), is, according to the traveller Bruce, the best of all vegetables. When boiled, it has the taste of the best new Wheat-bread not fully baked. Only the white "heart" of the stem is eaten; this is well boiled, eaten with milk or butter, and it is wholesome, nourishing, and easily digested. *M. Ensete* is a native of Abyssinia and equatorial Africa, but it is now widely distributed in the tropics. Young plants of it are used for summer effect in the London parks. According to the *Kew Bulletin*, the total weight of a single plant grown in the tropics is about a quarter of a ton.

SWEET PEAS.

THE first week in February is a suitable time to make sowings of Sweet Peas. The seeds may be sown to the number of five in a 3½-inch pot in sandy soil, placing the seed-pots in a cold glass-house. In some light soils and warm districts the seed may be sown in the month of November, but the gain by this early sowing is doubtful. The plant does not make much headway before April, and I fail to see the advantage of autumn sowing over that of sowing in pots in cold houses and frames.

The aim of the gardener should be to obtain plants 8 feet in height early in August. Some persons may think this an extraordinary height to



FIG. 22.—BUNCH OF FRUITS OF MUSA ENSETE.

planting in places where this has not yet been done.

Pot Roses should be pruned and brought under cover, not for forcing, but in order to preserve them from excessive wet and the extreme changes

against these are not only much easier, safer, and more effectual, but the necessity for using strong solutions of insecticides is avoided. Too often it happens that the remedies applied do almost as much harm as the insects. Use the syringe freely

wish Sweet Peas to grow to, but from experience I can say the higher they grow the better they flower, and we cannot have too much bloom from Sweet Peas. Now that varieties are so numerous, the correct method would appear to be to set out or sow in clumps, and by that means keep the varieties distinct from each other, not only for the sake of seed saving, but for a display also. When growing side by side, there is no fear of the varieties becoming mixed from inoculation by insects, as it is not possible for any insect to cross-fertilise varieties as in the case of many plants, owing to the development of the sexual organs prior to the expansion of the blooms.

There is no flower in the garden which is capable of affording such large returns for the amount of labour expended on it as the Sweet Pea, commencing, as it does, to unfold its blossoms in June, and given the right kind of treatment, continuing till checked by frost. A long season of steady uninterrupted growth is the chief point to aim at. In growing Sweet Peas there are three common mistakes which are made. First, the seed is sown much too thickly, in consequence of which the plants are so much crowded that continued vigorous growth is impossible. I like to see side shoots that extend to a length of 6 feet, then I am sure the plant is not lacking in vigour, and there will be a corresponding quantity of blossoms. The blooms should be furnished with 10 inches, or more, of stalk, and most of these carrying four blossoms. Another mistake, and a common one, is not to gather the blossoms. The harder the flowers are cut the more numerous they become, the flowering season being thereby extended; whereas, if few blossoms are cut, a full crop of seed-pods is the result, which, whilst they are maturing, rob the plant and bring flower-production to a standstill. Let the blossoms be removed frequently, and thus obtain a succession. The third mistake is to withhold water during spells of dry weather, when the plants should be in active growth. Some persons are apt to put the blame on an attack of mildew, but they forget how little they do to prevent such an attack. Drought at the roots is the common, and I might say, the only cause of mildew on Sweet Peas. Affording a mulch of half-rotten manure long before the mildew is discernible would be a step in the right direction, but too little attention is paid to the matter of mulching. Abundance of water at the roots, and occasional heavy applications of liquid manure are important matters.

By sowing the seeds in pots in cold frames at the time named, an early growth is obtained without incurring any trouble from slugs. When the pots are filled with roots let the plants be re-potted into small 32's, employing a compost consisting of two parts turfy loam, and one of half-decayed horse-manure; whenever the weather is suitable draw the lights off from the frame, so as to ensure stocky growth.

Early in the month of April strong plants 1 foot high will be provided, which, when set out in the open ground, will start into kindly growth forthwith. As a means of support nothing is better than untrimmed Pea-stakes, fixed perpendicularly alongside the plants soon after planting, in order that the tendrils may cling directly they are long enough. It is at this time that mulching is best carried out.

My note would not be complete without a selection of varieties. Like many other popular flowers, the varieties of Sweet Peas have increased so fast that a selection of the best is not easy, there being no fewer than 200 varieties in commerce. The following four dozen will give a good display if the cultural conditions are of the right kind, as they embrace the best of both old and new varieties.

In white-flowered varieties we have Sadie Burpee, Blanche Burpee, and Emily Henderson, all very fine sorts, possessing the points most desirable in a Sweet Pea. In blue, we have Countess of Cadogan and Navy Blue. In bluish, Mrs. Fitzgerald, Duchess of Sutherland, and Countess of Aberdeen. Claret-coloured sorts are well represented by Duke

of Westminster and Duke of Clarence. Creamy-white varieties are pleasing, and the best are Lemon Queen, Lady Beaconsfield, and Venus. Crimson is well represented by Salopian, Mars, and Firefly. Duke of Sutherland and Shazada afford desirable indigo tints. Telling varieties of lavender are found in Lady Grisell Hamilton, Lady Nina Balfour, and Countess of Radnor. Lady Skelmerdale and Colonist are representative of lilac tints. Of distinct magenta, Calypso, Othello, and Black Knight are recognised as being the best. The mauve-coloured Fascination is a desirable variety. The orange-coloured section has now become a large one, and Lady Mary Currie, Gorgeous, Countess of Powis, Chancellor, and Triumph are nice examples. In pink, we have Duchess of Westminster, Countess of Lathom, Hon. F. Bouverie, and Lovely, which are the cream of this tint. Monarch is a desirable purple-coloured variety. Varieties of rose colour are numerous. Lord Kenyon, Mrs. Dugdale, Prince of Wales, Splendour, and Apple Blossom are all first class. In scarlet, Prince Edward of York deserves extended cultivation. Striped varieties are numerous, but not so popular as some other types. Admirers of this class may choose with the surety of having something nice from Aurora, Mrs. Joseph Chamberlain, Duchess of York, Princess of Wales, and Senator. Yellow is a colour that has many admirers, especially if it be pure in tone. Queen Victoria gives blossoms large and in every way desirable; in fact it would be difficult to select a variety more pleasing in any colour. Cream of Brockhampton is an improvement upon Mrs. Eckford, itself desirable where numbers are required. E. M.

THE WEEK'S WORK.

FRUITS UNDER GLASS.

By J. ROBERTS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Peaches and Nectarines.—The advancement of the early house from the flowering to the growing stage will necessitate close attention to disbudding. But the young growths are the principal promoters of root action, and if these are removed in too great quantities a check may be given to the regular supply of sap to the young fruit. At the same time, a too large crop of growths has a tendency to rob the fruit of the necessary nourishment. Remove first a few of the strongest and worst-placed buds at the base of the shoots, allowing one on the upper side to remain to form a shoot for future bearing. The thinning out of young growths must be done at intervals of a few days. A few of these if growing in connection with well-placed fruits in the middle of the shoots, may be left till last, and then be shortened to two or three leaves with the thumb-nail. The strong tendency of the shortened shoots to draw sap will benefit the young fruit. In order that the trees may start cleanly, give them a thorough syringing, and fumigate with XL-All. A night temperature of 55°, with a rise of 5° by day, is quite sufficient at present. Succession-houses may be started as required to meet the demand, or retarded, if needs be, to meet any special occasion. Where new houses are ready for planting, the best tree, whether standard or dwarf, is one that has been lifted annually for three seasons before being taken under glass. This ensures a mass of fibrous roots, and subsequent fruitful growth. Reliable varieties for early forcing are:—Peaches: Amsden June, Alfred, and Hale's Early. Nectarines: Early Rivers, Précoce du Croncels, and Lord Napier. Mid-season Peaches: Crimson Gaiety, Grosse Mignonne, Royal George, Violette Hâtive, Dymond, and Bellegarde. Nectarines: Dryden, Violette Hâtive, Pine-apple, Humboldt, and Spenser. Late Peaches: Barrington, Nectarine Peach, Princess of Wales, Sea Eagle, Gladstone, and Lady Palmerston. Victoria is the best late Nectarine.

Strawberries.—The earliest plants will soon be in flower, and this is the only critical stage in forcing Strawberries. If the flower trusses are strong, and thrown well up above the crown of leaves, the prospect of a good set will be favourable. The Strawberry-blossom contains many stigmas, and these are not ready for pollination at one time, but

usually develop from the top of the fruit downwards. The failure to set one or more of these stigmas produces irregularity in the shape of the fruits. Remembering, also, that the flowers open in succession, it will be seen that much patience is required during the flowering period. The conditions most favourable to a perfect set are an elevated position on shelves near the glass, a moderately dry state at the roots, a liberal supply of fresh air free from cold currents, and a rather dry atmosphere. Advantage must be taken of fine days to distribute the pollen over the principal blossoms. This may be done with a very soft brush, and a wooden fan about a foot square with a strong handle is also useful to assist in the pollination of Strawberries. It is used as a whisk for creating a sharp movement of the air, and thus setting free the pollen. Temperatures of 50° to 55° by night, and 65° on sunny days, is sufficient for the trees whilst in flower. Introduce succession plants into warmth every fortnight.

PLANTS UNDER GLASS.

By T. EDWARDS, Plant Foreman, Royal Gardens, Frogmore.

Stove Plants.—If the cleaning of plants (as previously advised) is finished, the potting of the various species of stove-plants should now be pushed on, a commencement being made with Marantas, Anthuriums, Alocasias, and other ornamental foliage plants. Specimens which have grown beyond a convenient size may be divided with more safety at this season than if the operation be deferred, as then the danger of the leaves being scorched and disfigured is very great. Each plant should be examined, and re-potted where this is found necessary, and top-dressed in others, removing as much of the old spent ball as possible without injury to the roots. Alocasias and Anthuriums succeed in a compost consisting of fibrous-peat one half, and hand-picked loam, with the dust shaken out one quarter; the remainder being made up with sphagnum-moss, silver-sand, and bone-meal. Marantas should be potted lightly in peat, leaf-mould, and a small quantity of loam, plenty of sand being incorporated with the whole. It is advisable to make warm all composts intended for use with stove-plants before use. Nepenthes do not require much rooting-space, success depending chiefly on atmospheric moisture. Remove with a pointed stick as much of the old material as possible, and replace it with Orchid-peat, live sphagnum-moss, and clean crocks. If any of the plants are getting leggy, let them be cut down to two or three leaves. Cuttings of Nepenthes strike freely if placed through the hole of an inverted 60-pot in a propagating frame, stood on cocoa-fibre refuse dust, or on sphagnum-moss, and frequently syringed. Whilst in this stage they should be syringed occasionally, and as soon as the roots are visible, the tops should be potted into 60's, the same kind of treatment being continued till they become established. Afterwards hang them near the roof.

Humeas seem to be coming into fashion again. The final potting of these plants may soon be carried out, using pots from 9 to 10 inches in diameter. A compost consisting of light fibrous loam, flaky leaf-mould, and sand suits the needs of the plants admirably. Keep the plants in a cool greenhouse, avoiding sudden changes of temperature.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain Holford, Westonbirt, Tetbury, Gloucestershire.

Early Peas.—These may be easily grown under glass in hot-water pits or frames, if sufficient light is afforded to induce sturdy haulm. If sown in pots choose 8-inch ones, place a few crocks at the bottom, fill the pots for three-quarters of their depth with a mixture of fibrous loam, leaf-mould, and a small quantity of half-inch bones. The seeds may then be sown moderately thickly. The plants when 3 inches high may be left eight in a pot; the temperature by day at the commencement should be 55° and not exceed 60°, air being admitted in favourable weather. When the roots of the plants fill the soil, a top-dressing of the same materials should be afforded, and small, well sprayed Pea-sticks placed around the rim of the pot. When the pods are formed, occasional applications of liquid-manure will help them considerably. The varieties William Hurst, Chelsea Gem, and Early Sunrise, are of dwarf growth, succeeding admirably under pot culture.

Peas Out-of-doors.—For the earliest crops out-of-doors, Exonian, American Wonder, and Earliest-of-All, may now be sown to the number of twelve seeds in each 5-inch pot, and the latter placed in gentle heat till germination takes place, and then be shifted to a cool frame close to the glass. Ventilate the plants by degrees, admitting more and more air till the plants are 4 inches high, when planting-out may take place. The early crop of Peas should be taken from a border in the front of a south or west wall, which should be prepared by deep trenching and ridging, in order that it may be dried and pulverised by the sun and wind.

Cauliflowers.—Plants of Walcheren raised in September and pricked out into cold frames must be afforded free ventilation, or a check will follow the planting-out. In order to be prepared for a possible deficiency of plants, seeds of the varieties Extra Early Forcing and Early London may be sown forthwith in pans or seed-boxes, placing these in a gentle heat and near the glass. When the seedlings show the second leaf, prick them out into beds in pits and frames, in order to gain size and strength before planting them out-of-doors. These plants will then form heads of a moderate size by the end of the month of May.

Cabbages.—Beds planted in the autumn should have every vacancy in the lines planted up from the reserve or the seed-beds; and if the demand for Cabbages is large, seed of All Heart and Veitch's Earliest-of-All may now be sown, and the seedlings treated in the same manner as advised for Cauliflowers.

THE FLOWER GARDEN.

By J. BENBOW, Gardener to the Earl of Rochester, Abbotbury Castle, Dorset.

The Dahlia.—Tubers of varieties selected for propagating may forthwith be placed in a warm-house, or on a hot-bed, being set fairly close together with cocoanut-fibre refuse or coarse leaf-soil packed round and over them, to a depth of from 3 inches. In whatever manner heat is afforded to start the tubers into growth, they should be afforded plenty of light from the moment they commence to put forth shoots. When a shoot has reached a length of 4 inches it is fit for making a cutting (a heel). Such cuttings may be inserted singly in pots filled with sandy soil, which may be plunged to the rim in a hot-bed frame having a warmth of 70° to 75°.

Cannas.—These useful plants should be got into growth early this month, potting them into rich soil, and affording good drainage. Plunge in mild bottom-heat, and on signs of root activity being noticed, afford tepid rain-water, increasing the quantity as the roots fill the soil. A suitable temperature is one of from 60° to 65°. Choice or new varieties may be now increased by division of the root, taking care that each piece is furnished with a bud. Choose pots to suit the size of the divisions. Plunge these in a hot-bed such as I have recommended for striking Dahlias. Afford water sparingly until a move is noticeable in the growth, when a little more may be applied; but much caution is needed at this stage, or decay will be set up in the rhizome.

Potting-plants.—Various kinds of soil may now be got in readiness for potting purposes; sifting light loam, leaf-mould, grit, &c., and mixing, and otherwise preparing the different composts, so as to suit the plants to be potted. Let pots of all the suitable sizes be washed or bought in, and let them be kept under cover. Pelargoniums which have been rooted in the usual sort of box must be potted before overcrowding weakens them; and in potting, the soil should be dry enough to allow of the soil being made firm without it sticking to the gardener's hands. The best soil is one of which two-year-old pasture-loam forms three-quarters of the whole. Not much hard drainage is required in the pots; one or two concave pieces, hollow side downwards, and a big pinch of roughish loam or dried horse-dung being enough. Rooted cuttings of Lobelia erinus in variety may in turn be potted, and replaced on shelves where they were rooted. These potted plants will in turn afford cuttings, which are very useful where large numbers are needed.

Echeveria secunda glauca, Mentha Pulegium, and Sedums which are pricked out thickly in slightly-warmed frames should have the lights drawn off the frames on bright days.

Seeds.—Weather permitting, a sowing may be

made of Sweet Peas, sowing thinly in lines. Seed^s of alpine plants may be sown in small plots, making the soil firm by patting it with the back of a spade. Cover with fish-netting raised above the soil, and set traps for mice.

Bedding Plants.—After foggy and wet weather let all kinds of plants be cleared of decaying leaves, affording plenty of air when the weather is not frosty. If the coal-ashes on which the plants are standing is very moist, replace it with fresh materials, and make use of the hot-water pipes during the day in conjunction with ventilation to drive out damp. Calceolarias, after clearing away decayed leaves, should have charcoal-dust strewn between the cuttings, in order to arrest decay. Verbenas, being subject to attacks of mildew, should be kept in a dry, warm house, near to the roof-glass, and if a dusting with sulphur be afforded in early morning the spread of mildew will be arrested.

General Remarks.—During mild weather coverings which were placed at the base of half-hardy plants may be partially removed in the warmer parts of the country, but in the colder parts there should be no hurry to remove anything yet.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener, Stoke Edith Park, Hereford.

Bush Plums.—The pruning of Plums is similar to that of the Apple and Pear, excepting that the young breast shoots and others left for forming fruit-spurs need less severe cutting back; at the same time they should not be left of any great length, or the bushes will become very dense with growths. Some gardeners leave a greater number of branches in the Plum than in the Apple, but this I consider to be mistaken practice, quite as heavy a crop of fruit, if not heavier, being obtained from bushes the branches of which are kept thin and the centres open. Bush Plums are more economical than standard trees, as the bushes may be planted at 9 feet apart each way. It is probable that to keep bushes fruitful root-pruning and lifting will have to be performed once or twice; but afterwards they bear well.

Pyramidal Apples, Pears, and Plums.—These require exactly the same treatment as bushes, with the proviso that the leading shoot must be retained for the extension in height in the case of young trees that have not reached their limit. These shoots should have the tips removed.

Maiden Trees.—Such of these as consist of a single shoot should be cut back to a point where there are five prominent buds, if they are to be trained as pyramids; whereas for forming bushes four buds will suffice, a leading shoot not being required.

Bush Cherries.—Culinary varieties, such as the Morello, Belle Magnifique, and Kentish, will simply need the shoots to be thinned out where crowded, the weakest wood being that first removed, afterwards taking out the remainder if the crown is still too dense. The use of nets in protecting the fruit of the Cherry is apt to cause the trees to assume a drooping habit of growth, and is a check on upward growth. Those who have but a small wall area at command should always adopt this method of growing the Morello and kindred varieties, for the trees may be planted at 6 feet apart, and will in a few years form a very fruitful hedge. Dessert varieties of the Cherry, if they were summer-pruned, will require only a shortening of such leading shoots and spurs as may have grown to too great a length. Dessert Cherries in bushes, in order to keep them healthy and vigorous, are better cultivated on the extension than the restrictive method.

Cleansing Trees and Bushes.—Pruning finished, spray the trees, &c., with the caustic soda in solution as previously recommended, before the borders are pointed over. Trees infested with American-blight should be well brushed on stems and branches with petroleum emulsion, and the roots laid bare for a yard or two; and if any of the insects are found, sprinkle with water to which petroleum has been added, at the rate of two fluid ounces to each gallon of water, or use strong soap suds instead. Remove the soil which has covered the roots and char it, replacing it with soil from the vegetable quarters, or with fresh loam. Trees covered with moss and lichen may be washed with caustic soda.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen.

Masdevallias.—Orchids at this season begin to make slow growth, generally necessitating an examination of the roots and rooting material. Amongst the first to need attention are Masdevallias. To enumerate the varieties would occupy too much space here, and it will suffice to say that with few exceptions, viz., *M. tovarensis*, and those of the Chimara section, Masdevallias may now be resurfaced with fresh material, or repotted as the case may require. This, however, only applies to plants that need not be pulled apart when repotting them, for where such an operation is necessary, better results will be obtained if it be carried out later in the year. Small plants and others which require larger pots and pans to hold them in an unseparated state, may be safely repotted forthwith. The strong varieties as *M. Harryana*, *M. ignea*, *M. Veitchi*, &c., are suitably accommodated in pots; but *M. Shuttleworthi*, *M. muscosa*, *M. Wageri*, *M. tridactylites*, and others of a similar nature, thrive better when grown in suspended pans. Pots and pans should be three parts filled with clean crocks, and afterwards a compost consisting of one half of fine textured peat, and one half of clean living sphagnum, well incorporated with each other. Plants about to be repotted should have no water afforded them for a few days previously, in order that the stale materials may be picked out readily; and when the new is placed about their roots, the condition of the plant can be easily ascertained, and water afforded accordingly. For some considerable time a moist condition should be maintained, but prolonged saturation at this season causes the leaves to drop. It is seldom necessary to break the pots in order to detach the old compost from the roots, and the clean pots used should be proportionate in size to the plants. The material should be worked in evenly and made firm about the roots, but not pressed very hard, or elevated above the rim. Sand is often used with the compost, but excepting river-sand from unpolluted streams, it is of little value, and finely-broken crocks are better for securing porosity. For some time after repotting, a slight sprinkling of the surface will supply the plants with all the moisture they require.

Phalenopsis of all species, more especially those that have just flowered, should be given a short season of rest, by restricting the amount of water afforded, allowing a moderately low temperature, and a drier air. Soon after blooming, the oldest leaves turn yellow and fall away, and attempts are sometimes made to avert this by affording much moisture, and thereby, in my opinion, render them more susceptible to decay, rather than preventing it. As the sphagnum-moss will be replaced in a month or two, no attempt at keeping it alive should be made.

ALPINE GARDEN.

SAXIFRAGA APICULATA.

SOME large tufts have been covered with flowering spikes for some weeks. In southern gardens this is a somewhat unfortunate fact. Plants that are full of promise some weeks prior to Christmas do not always fulfil that promise. Many flowers were expanding early in December, but the severe frost was too much for the rather tender footstalks. Fortunately, *S. apiculata* is very free, and the more or less backward rosettes soon fill gaps made by the frost. To some extent, the tendency to flower early may be modified by giving the plants a shady position, whether planted in the rockery or in pots. The plants are very successful in such positions in summer, growing much more freely than in sunshine. This is better practice than giving any kind of protection to the advancing flowers, and much as the earliest flowers are appreciated, it is better to have them quite natural, if possible. The pale yellow blossoms of this kind make a good display, and in the open I have known them continue attractive for several weeks. The plant requires but a good ordinary soil, with plenty of grit in it, and succeeds in smoky London as well as elsewhere. *E. Jenkins.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR FEBRUARY.

MONDAY,	FEB. 5	{ National Chrysanthemum Society, Annual Meeting.
TUESDAY,	FEB. 13	{ Royal Horticultural Society's Committees Meet.
THURSDAY,	FEB. 15	{ Linnean Society Meeting.
THURSDAY,	FEB. 22	{ Annual Meeting of the Kew Guild: Manchester and North of England Orchid Society's Meeting.
TUESDAY,	FEB. 27	{ Royal Horticultural Society's Committees Meet.

SALES.

MONDAY, FEB. 5.—Hardy Perennials, Roses, Fruit-trees, &c., at Protheroe & Morris' Rooms.

WEDNESDAY, FEB. 7.—Japanese Lilies, Palms, Greenhouse Plants, Azaleas, Roses, Hardy Border Plants &c., at Protheroe & Morris' Rooms.—Clearance Sale of Stove and Greenhouse Plants, Orchids, Garden-frames, &c., at Braddon Tor, Braddon Hill Road West, Torquay, by order of Captain W. Fane Tucker, by Protheroe & Morris, at 12.30 o'clock.

FRIDAY, FEB. 9.—Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—39° F.

ACTUAL TEMPERATURES:—

LONDON.—January 31 (6 P.M.): Max. 41°; Min. 35°.

PROVINCES.—January 31 (6 P.M.): Max. 41°, Coast of Mayo; Min. 35°, Peterhead.

A German Exhibition of the Florists' Art. WE are informed by the President of the Committee, Dr. M. SCHMIDT-METZLER, that it is intended to hold a general exhibition of objects of the florists' art—cut blooms and articles used in the work of a florist—in the Palm Garden, Frankfort-on-the-Maine, on June 23, 24, and 25, 1900. The exhibition is the outcome of a desire on the part of professional and amateur patrons of the business, which has greatly increased as an industry in Germany as elsewhere, to afford the general public a collective idea of the florists' art of the present day, and of its capabilities. The exhibition will cover the entire area of the florists' industry, such as the decoration of saloons and apartments; the flowers and greenery necessary in carrying out different descriptions of decoration, baskets, china, glass, and other objects used in the work, being of German origin. Frankfort has long possessed a reputation for excellence in the florists' art, and it is hoped that an exhibition in that town will lead to an improved taste being displayed in other parts of the country. A large number of prizes in money, as well as gold and silver medals, will be awarded to competitors.

Horticulture and the Study of Nature. LAST week we touched upon the subject of rural education in this country, and on the day our article was printed, an influential deputation from the Agricultural Education Committee was received by the Duke of Devonshire in his capacity of Lord President of Council. The object of the deputation was nothing more nor less than to urge the taking over of the teaching work of the Board of Agriculture by the new Board of Education, which begins work next April.

The suggestion was made with a view to the introduction of such teaching as we dealt with last week into the village schools of this country. The necessity of appointing a number of specially-qualified inspectors to see that the instruction is properly carried out was emphatically brought forward at the same time.

The Duke of DEVONSHIRE, who expressed his agreement with the improvements desired, seemed to think that the success of their introduction depended altogether upon the manner in which the local bodies who deal with education took up the matter. When once the interest in the kind of teaching advocated became general, this might easily be carried out.

There can be no doubt as to the truth of what the Duke of DEVONSHIRE said, but there are a number of other things to be reckoned with. We have already pointed out how much depends upon the teachers themselves, who have to guide the children in the study of Nature, and upon their own training. One of the first pieces of work to be done, if rural subjects are to be efficiently taught, is to arrange for an organised system of normal classes at suitable centres for the instruction of our village schoolmasters and mistresses. There will, of course, be some little difficulty in finding a sufficient number of instructors of the right kind, and probably the only useful plan to adopt will be to give to a trained biologist the help of a practical man.

The selection of inspectors will also be by no means easy, for the proper men for the post should not only be field naturalists, but should combine a knowledge of modern methods of science teaching with the applications of biology to the cultivation of plants and the rearing of animals. With reference to the Duke of DEVONSHIRE's remarks as to the co-operation of the schools, it might not be amiss to see what evidence on the subject can be gleaned from the English Education Exhibition which has just been held. The fact may not have forced itself upon the ordinary visitor's mind, but a careful examination of the exhibits soon made manifest what a surprising number of teaching establishments in this country include some branch of Nature-study in their curricula. It would be out of place here to criticise academic teaching, except so far as the training of teachers is concerned. We need not say anything further about natural history in ordinary secondary schools than that it is usually scrappy, often only theoretical, and, to judge by the specimens exhibited, by no means taken seriously. The work that is of particular interest to us is the instruction in horticulture and botany in elementary schools and under County Councils.

By the Church of England Schools, under the heading of "Manual Instruction," photographs of school gardens at Freshwater and Stratton were exhibited. In the first case these were accompanied by note-books, and in the second by vegetables grown by the boys. The work of the British and Foreign Schools Society was represented by similar pictures of the school gardens at Boscombe. Note-books again were in evidence, with plans of the whole garden and a single plot; while a report dealt with gardening as a part of General as well as of Technical Instruction.

Granting that these schools are the only ones in the two series where horticultural instruction is given, the fact remains that work of the kind has already been begun in our country schools. Botany is a subject taught both in "British" and Wesleyan Schools, and seeing that the Board Schools in cities and big towns like

London, Leeds, Sheffield, and Brighton teach the same subject under difficulties, it should not be a hard matter to adopt a course of Nature-study in country establishments of a like constitution. Although it does not bear directly upon rural education, it would be a pity not to mention the fine exhibit of botanical material which, through the action of the authorities of the London parks, is now supplied to one hundred and forty London Board Schools. The metal cases, containing a fortnight's supply, were also to be seen, and seventy of these are despatched each week.

Very interesting were the note-books of the students in the day training-classes for elementary teachers at Owen's College. In these, a series of lessons had been drawn up for children of seven years old, dealing with a flower such as the Rose, or the Violet. The legendary, poetic, and artistic aspects were grouped together as "humanistic," while quite a number of others were rather broadly termed "scientific." With some slight modifications, such a series of lessons might well be arranged for country children.

We mentioned last week the training of school-masters and mistresses to teach rural science, under the auspices of county councils. The only evidences of the work of teachers so trained were included in the exhibit from Essex. The carefully-written and illustrated monographs prepared by the normal students each dealt with the minute structure, growth, and general life history of some one plant, and showed that in addition to theoretical knowledge, methods of manipulation, and of observing and recording facts, had been thoroughly mastered. When such original work is part of the test to be passed before a teaching certificate is gained, it is not likely that school lessons will be snatched from a text book, instead of being taken straight from Nature.

From the foregoing it will be seen that those who will be responsible for the success of rural education have some work already accomplished in this country to guide them. It is more than likely that a great deal more has been quietly going on than was to be judged from the Education Exhibition, for many branches of instruction were very badly represented.

Let us leave elementary education, and look how far those interested in horticulture took the trouble to show what systematic teaching of this subject is being carried on in England. The distribution of practical gardening schools, and the places where lectures and demonstrations had been given in Somersetshire, were shown on a map of the county by its Council. That of Essex exhibited both the "Science" and "Practice" note-books of first and second year's students in their horticultural school, as well as the year's prospectus of the latter. The position of Swanley College (aided by the Kent County Council) was shown on a map on the scale of four miles to the inch. Cheshire not being represented by any exhibit, no allusion was made to the horticultural side of Holmes Chapel College. In a portfolio were the "school garden schemes" of the Surrey County Council, but no evidence of the existence of the Practical School at the Botanic Gardens, Regent's Park (which is helped by the London County Council), could be found. Here again the only important exhibit came from Essex.

The chief Agricultural Schools were represented but very poorly as regards the results of their teaching work. The natural history specimens shown were in many cases poor, dirty, or devoid of any trace of the curator's skill.



THE HALL AT DEEPEDENE, NEAR DORKING.

VIEW OF THE ENTRANCE-HALL AT DEEPDENE (see Supplement).—In our issue for January 20 we referred at some length to the beautiful gardens attached to the Deepdene, Dorking, the residence of LILY, Duchess of Marlborough, and Lord WILLIAM BRESFORD. Our supplementary illustration this week is of a different character to the views then given, as it shows the interior of the entrance-hall of the residence. There are some very fine specimens of Palms at Deepdene, and in our illustration is shown what a beautiful effect may be obtained in dwelling-rooms by a skilful use of these graceful plants. There are few species of plants that lend themselves more fully than Palms for purposes of indoor decoration generally.

THE LATE DUKE OF TECK.—The death of H.H. the Duke of TECK creates a vacancy in the Presidency of the Royal Botanic Society.

R. D. BLACKMORE was a good cultivator and a practical man; we have seen him pruning his own Vines and fruit-trees. When fruit-growers were being lectured upon the necessity of selecting the best fruits only, of taking great pains with packing and other details of marketing, BLACKMORE once drew us aside with a curious smile to show us that what was being recommended was just what he had been doing for years. In these particulars he was like THOMAS RIVERS, who, however, was not so lenient to those who were presumptuous enough to think they could teach him how to grow fruit-trees. There is one trait in our friend's character that has not been alluded to, though the reader has but to look at the genial portrait we gave last week to see that a keen sense of humour was one of his most prominent characteristics. Those who were present at a certain conference on Vine diseases held at Chiswick some years ago, will remember the rich, rollicking humour with which he described a certain disease whose nature at that time was unknown. The way in which he criticised the plant-doctors with an imperturbable countenance, was one of the richest bits of fun we ever remember. Unfortunately the critic was no better but rather worse informed, but everyone enjoyed the fun nevertheless. Another characteristic of our lamented friend was his generosity. Several instances of this came under our notice. He could not say "No" when pain, or poverty, or distress appealed to him. It is possible his want of success as a business man may in a measure be attributed to this. Twice within our recollection the waggons in his yard were loaded and about to start for market, when a poor broken-hearted man, whose wife was dying of consumption, came and pleaded for some Strawberries, which were then at a high price. The man went off with the Strawberries, telling the writer of these lines that he felt ashamed to ask such a favour from Mr. BLACKMORE, as he had so often received similar kindness.

LINNEAN SOCIETY.—On the occasion of the meeting of January 18, 1900, Dr. A. GUNTHER, F.R.S., President, in the chair, Mr. GEO. MASSEE, F.L.S., read a paper on the origin of the Basidiomycetes. He remarked that Juel, a Danish mycologist, had recently demonstrated that *Stilbum vulgare*, hitherto regarded as a typical Hyphomycete, is a true Protobasidiomycete. Following up this hint, the majority of the species of *Stilbum*, some of which are the known conidial phase of species of *Sphaerostilbe*, and others existing without any known higher form, were examined, with the result that the conidial condition of *Sphaerostilbe microspora* and *S. gracilipes* proved to be identical in structure with *Stilbum vulgare*, in other words, true Protobasidiomycetes. This discovery reveals the fact that the conidial condition of an ascerigerous fungus may be a true Protobasidiomycete. Similar discoveries have been made with forms of *Tubercularia* and *Isaria* known to be the conidial stages of ascerigerous fungi. An exhibition of lantern-slides in illustration of Mr. MASSEE's remarks was deferred.

PERMANENCE OF HYBRIDS, CROSSES, AND GARDEN RACES GENERALLY.—Mr. IRWIN LYNCH, of Botanic Gardens, Cambridge, writes, "Having undertaken a lecture at a meeting of the Royal Horticultural Society, I should be very grateful to anyone who would kindly provide me with evidence and opinion, derived from their own experience, concerning the above. I am particularly interested in the reversion of hybrids to one of the parents. Does the garden *Viola* ever, in this way, lose its character when raised from seed? What good hybrids come true from seed (as is understood, for instance, of *Hippeastrum*), so far that identity, at least, is indefinitely preserved? My appeal is justified, I hope, by the possibility of receiving evidence which may support or weaken one side or other of present opinion, and so provide interest for the meeting. I may further be justified by the fact that, from different points of view, further evidence with regard to the behaviour of hybrids is much wanted."

COLOURING MATTERS IN FOOD.—The evidence given before the Departmental Committee inquiring into the use of preservatives and colouring matters in food, affords many indications of the prevalence of opinions based upon crochets and fads, as might have been expected; but it is more remarkable to find one of the learned members of the committee reported as betraying such want of acquaintance with the subject matter of his questions in regard to the preservation of the green colours of Peas, as to state, as a leading question, that "the object of the copper is, of course, to restore the colour of a faded Pea?" That was too much even for the witness—by the way, the President of the Society of Public Analysts—who discreetly replied, "No doubt it is to make it a good colour." But this answer was not sufficient for the examiner, who again asked, "But is it not a fact that the use of copper in Peas allows the substitution of a Pea which has gone 'off colour,' and which competes with a Pea that has been preserved by a somewhat better process, and which has retained its colour?" To which the witness, perhaps, with less discretion than before, replied, "I think it very probable; but I really do not know!" *Pharmaceutical Journal*.

CARDIFF AND COUNTY HORTICULTURAL SOCIETY.—The eleventh annual general meeting of the Cardiff and County Horticultural Society was held under the presidency of Mr. A. W. P. PIKE, on the 25th ult., when a goodly number of friends attended. Arrangements were made for the annual show to be held on July 18 and 19, subject to the usual permission for the use of the grounds from the Marquis of BUTE. The accounts for the past year's work were read and adopted. The officers for the current year are: President, The MAYOR; Chairman of Committee, Mr. S. MEDHURST; Vice-chairman, Mr. JOHN GRIMES; and Secretary, Mr. H. GILLET.

THE CARDIFF AND DISTRICT CHRYSANTHEMUM SOCIETY held their thirteenth annual general meeting on Friday, 26th ult., when between forty and fifty members attended. Mr. F. G. TRESEDER, who has occupied the position of Chairman of the committee for the past three years, resigned in consequence of press of business, and he was cordially thanked by the Society for the good work which he has done. Mr. JOHN HOWE was appointed in his place. Mr. GEORGE SHEWRING, Vice-chairman; and Mr. H. GILLET, Secretary. The date of the annual show was fixed for November 7 and 8.

FLOWERS IN SEASON.—We have been shown a collection of flowers representing strains of *Primula sinensis*, or Chinese Primrose, by Mr. W. BULL, New and Rare Plant Establishment, King's Road, Chelsea. The varieties are numerous, and include many charming and distinct colours. The flowers are of very satisfactory form, and most of them are beautifully fimbriated. Of so-called blues, much better than the old *cœrulea*, is one bearing the

name Imperial. A very fascinating pink variety is *Pink Countess*; it is fuller, larger, and more fimbriated than *Pink Beauty*, which is also pretty. Of crimsons, there are fulgens, and the newer *Comet*; the latter especially being very deep in colour and effective. The best carmine is one called *Mars*, and there are pretty white varieties with yellow centres in *alba* and *Avalanche*. *Albomaculata lutea* is the nearest approach to yellow; the centre is surrounded by rich Buttercup-yellow, which colours more than half of the length of the petals, the extreme outer margin being pale primrose. *Lilacina marmorata* and *carmines marmorata* present shades of lilac and carmine respectively. A reddish-purple is provided by *rubra* and *Sunshine*, each of which is very bright and pleasing in tint. There are semi-double varieties in white, pink, carmine, purple, and crimson.

THE NATIONAL CHRYSANTHEMUM SOCIETY.—The annual general meeting will take place at Carr's Restaurant, 265, Strand, W.C., on Monday next, February 5, at seven o'clock in the evening. In addition to the election of officers, and other routine business, certain alterations and amendments to the Rules will be considered. The following notice of motion has been given by Mr. THOMAS BEVAN: "That the election of the present General Secretary be postponed; and that an advertisement be inserted in the gardening papers for a properly qualified person to fill the post at a salary of £100 per annum."

PRESENTATION.—On Thursday night, Jan. 25, at Mr. J. CYPHER's nurseries, Mr. G. E. YEATMAN, one of the Service Company about to leave for South Africa, was presented with a silver-mounted meerschau-pipe, in case, and a pound tin of tobacco, subscribed for by his fellow-workmen (indoor department), with whom he has been connected for the last five years. The presentation was made by Mr. J. SKINNER, of the Orchid department, to which the recipient belonged.

TEA STATISTICS show a very marked increase in the Tea shipped from Calcutta during the present season, of which Australia and America took a proportionately larger quantity, more than setting off a decline in the Bombay requirements. From April 1 to date, shipments to Great Britain were 12½ per cent. in excess of 1898-99; 59 per cent. more was shipped to Australia; 10½ per cent. more to America. Bombay shows a decrease of 32 per cent., and sundry ports 1 per cent.

THE RAINFALL OF 1899.—The aggregate rainfall during the year just closed was deficient over the whole of England, the deficiency amounting to 6 inches in the Channel Islands, 5 inches in the south of England, and 4 inches in the east and south-west of England. There was a slight excess in most parts of Scotland and Ireland. The mean temperature for the year was in excess of the average over the whole area of the British Islands, the excess being greatest over the southern portion of the kingdom, although it was also very large in the north of Scotland. There was an excess of sunshine over the entire country, amounting to about 350 hours in the south of England, and exceeding 200 hours over the whole of England, except in the north-eastern district. In Ireland the excess was about 150 hours; but in parts of Scotland it was not so large.

FLAX CULTIVATION.—The annual returns relative to the cultivation of Flax in Ireland show a slightly increased quantity over previous years, although the additional area does not reach a thousand acres, the actual acreage this year has been 34,986, whilst the area of the previous year was 34,469; and bracketed in the same report are figures that reveal the enormous quantities of Flax which is imported, and of which the total cost to the country was three millions sterling, a fact which tells immensely against our merchants, and shows the want of sound scientific education combined with a practical training. It certainly is an opportunity the Irish Agricultural Board have to foster

and stimulate this almost languishing industry; whilst the commercial advantages which would necessarily accrue if its development was assured ought to be kept prominently in view. The annual loss of about three millions every year ought in itself to be a guarantee, even though it may be subjected to criticism from several standpoints, that the outlook is reassuring to the promoters whose aim is to engender a healthful activity amongst the agriculturists of the country.

THE ROYAL GARDENERS' ORPHAN FUND.—The usual monthly meeting of the committee was held on the 26th ult. A donation of £12 5s. was received from Mr. H. J. JONES, the receipts of a box placed in his Chrysanthemum-house at Lewis-ham. It was announced that the annual dinner would take place on Tuesday, May 8, at the Cafe Monico, Lord BATTESEA having kindly consented to preside; also, that the Richmond Horticultural Society would at their next summer exhibition set apart a tent for the sale of flowers on behalf of the Fund. Messrs. P. E. KAY and T. G. SWALES were nominated as members of the committee in the places of Mr. A. OUTRAM, deceased, and Mr. THOS. PEED, resigned. A draft report and financial statement was read, the latter showing an increase of £73 1s. 6d. over the receipts for 1898, and both were adopted for presentation at the annual general meeting on Friday, February 16.

EXHIBITION SCHEDULES TO HAND.—We have received from the following Societies copies of their schedules of prizes to be offered at forthcoming exhibitions:—

RICHMOND HORTICULTURAL SOCIETY.—The annual show to be held in the Old Deer Park, in the pretty suburb of Richmond, on June 27 and 28, will be a more important event than usual, owing to the visit there of the committees of the Royal Horticultural Society. In the schedule issued by the local committee, containing the regulations to be observed by exhibitors, and lists of prizes offered for competition, information is given respecting the arrangements made for the exhibits that will be entered under the auspices of the parent society. These instructions plainly indicate that there will be a meeting very similar in character to those held from time to time in the Drill Hall, Westminster. New or rare plants, flowers, fruits, or vegetables, may be shown for Certificates, and groups of the same will be rewarded by Medals, exactly as at Westminster. The Fruit, Floral, and Orchid Committees will meet at 11.30 A.M. on June 27, and there will be a meeting of the Council at 12.30 P.M. Exhibitors intending to stage groups would greatly assist the local committee by giving notice to the Secretary, R.H.S., as early as March 1, with an idea of the space that will be required. Groups may be entered as late as June 16, but their acceptance will be subject to there being space unapplied for previously. The plants must be on the ground by 9.30 A.M., and the staging must be completed by 10.30 A.M. All groups must be left for the second day of the show, and may not be removed till 7 P.M. on Thursday, 28th. At 10 A.M. Fellows of the R.H.S. will be admitted to the show; and at 1.30 P.M. there will be a luncheon, to which the Council of the R.H.S., and the members of the Fruit, Floral, and Orchid Committees, together with the local committee and judges, will be invited. The schedule of prizes offered by the local Society is a liberal one, and the numerous special prizes include a Challenge Cup, value 15 guineas, the gift of Mr. and Mrs. CHANCELLOR, for the best collection of forty-eight cut Roses. Richmond may be easily reached from any part of London, and there will doubtless be a good show, and a large number of visitors there in June. Any further information required may be obtained from the Hon. Sec., Mr. C. R. KING, 61 and 62, George Street, Richmond.

COUNTY BOROUGH OF HANLEY HORTICULTURAL FÊTE.—Following the example of Shrewsbury, Wolverhampton, and some other large towns, Hanley has held a horticultural fete in the Park belonging to the borough for several years past. Situated

almost in the centre of the Staffordshire potteries and a large population, it is not surprising that the show each year has increased in importance and extent. The forthcoming exhibition will be held on July 4 and 5, and the advance proof of schedule contains as many as 103 classes, for some of which very handsome prizes are offered. We can only mention very few of these. For a group of plants arranged for effect, a sum of £70 is offered in four prizes, the 1st and 2nd prize-winners to be awarded special prizes to the value of £5 and £2 2s. in addition. For a group of Orchids in bloom, £30 and special prizes are set apart; and for a group of Malmaison Carnations, £11. Upwards of £25 is offered in a class for a dinner-table decorated with flowers, foliage, and fruit; and numerous classes have been arranged for plants, cut flowers, fruits, and vegetables. There are sections for amateurs, and for cottagers. The nearest railway-station is Stoke-upon-Trent, and the horticultural Secretary is Mr. J. KENT, Hanley Park, Staffordshire.

ROYAL HORTICULTURAL SOCIETY OF SOUTHAMPTON.—The report for the past year, to be presented at the annual general meeting on February 22, is a satisfactory one. The summer show has been arranged for June 27 and 28, 1900; and the autumn show of Chrysanthemums, &c., for November 6 and 7. A satisfactory list of classes for each of these events is given in the schedule. The Hon. Sec. is Mr. C. S. FUDGE, Heckfield, New Alma Road, Southampton.

BURY AND WEST SUFFOLK HORTICULTURAL SOCIETY.—This Society holds one exhibition each year, for Chrysanthemums, fruit, vegetables, &c. The one for 1900 will take place in the Corn Exchange, Bury, on November 8 and 9, when a sum of £130 will be offered in prizes. The Hon. Sec. is Mr. W. NORTON, 7, Guildhall Street, Bury St. Edmund's.

THE QUINCE STOCK AND PEARS.—We read in *American Gardening* an account by a correspondent of that journal, of the behaviour of the Kieffer Pear when budded on the Quince stock. Ten years ago he budded this variety on the Quince and was surprised after getting two or three small crops to find the trees in a dying state. The stocks were found on examination to be quite thin, and the Pear stem quite thick; in fact, the stock was strangling the Pear. The writer replanted the trees deeply so as to get the point of union below the soil, and by that means obtained Pear-roots; he then cut away the original Quince stock and thus obtained trees on the Pear, which have done well ever since.

THYMO-CRESOL.—What do our readers know of this new and powerful disinfectant, germicide and fungicide? the use of which in the garden is strongly recommended by competent authorities for the destruction and extermination of plant-pests. It is said to be used by planters in India against red-spider, blight, &c.

BOOKS AND PUBLICATIONS RECEIVED.—*Moor und Alpenpflanzen und ihre Cultur im National Arboretum, und Alpengarten, Zoeschen bei Meran*: printed and published by E. Karras, at Halle, A. S. A useful and extensive list of heath and alpine plants grown for sale in the National Arboretum and Alpine Garden at Zoeschen. The list is furnished with columns for information, namely, native country, region or district; chief habitat, kind of soil best suited to the needs of the plant; aspect; growth; commercial value; and lastly, a marginal space for remarks in pen or pencil. —*List of Seeds offered by M. H. Corveon, of the Garden Alpin d'Acclimatation, Geneva*.—*Century Book of Gardening*, part 22.—*British Inventions*, vol. i., No. 1: A well and profusely illustrated journal, appearing weekly, appealing to those who are mechanics by trade, or have a taste for mechanical occupations.—*Queensland Agricultural Journal* for October, 1899, with descriptive notes on thirty-one native species of plants. Also papers on Viticulture, the Kei Apple, and Plants Poisonous to Stock: By F. Manson Bailey, F.L.S., Colonial Botanist.—*Annales Agronomiques*, tome xxvi., No. 1, January 25, 1900.—*Journal of the Society of Arts*, January 26, No. 2462, vol. xlviii.—*The Agricultural Journal*, Cape of Good Hope, No. 13, vol. xv.—*Bulletin of the Botanical Department, Jamaica*: Edited by W. Fawcett, F.L.S. Articles on Camphor, Mexican Sunflower, Mexican Tobacco, International Conference on Hybridisation, Drying-house, &c.—

Publications issued by Messrs. Sutton & Sons, Reading, viz., *How to make Tennis and Garden Lawns; Drainage of Lawns, preparatory work; Weed-seeds in Soil; Enriching the Soil; Selection of Seeds, and General Upkeep of Lawns; Short, pithy, practical instructions on an important subject. Lawns*, a larger work on the same subject, rather more fully treated and enriched by illustrations: Published by Simpkin, Marshall, Hamilton, Kent & Co., Ltd., London.—*Schedule of Prizes offered by the Massachusetts Horticultural Society for the year 1900*: Boston.—*Botanical Gazette*, No. 6, vol. xxviii., December, 1899.—*Proceedings of the Academy of Natural Sciences of Philadelphia*, Part II., April-September, 1899: Published at the Academy of N. S., Logan Square, Philadelphia.—*Mitteilungen der Deutschen Dendrologischen Gesellschaft*, No. 8, 1899.—*Kew Bulletin*, Appendix iv., 1899: Contents.—*Catalogue of the Library*. This instalment contains the additions made to the library during the year 1898, with the exception of such current periodicals and annuals as continue sets already catalogued.—*Delectus Seminum ex Horto Cantabrigiensi Academicæ ad mutam commutationem propositum*: Cambridge, University Press.—*Gartenflora*: No. for January 16, 1900.—*Plant List of the Royal Botanical Garden at Belgrade*: Tenth year.—*Flowering Plants*: by Anne Pratt, Vol. IV., Nos. 81 and 82.—*Home and Garden*: by Gertrude Jekyll, published by Longmans, Green & Co., 10s. 6d. net.—*Century Book of Gardening*.—*Queensland Agricultural Journal*: Vol. V., part 6, December, 1899.—*Notice sur l'Exposition Centennale et l'Exposition Contemporaine de 1900*, par A. De la Devanaye: Paris, Octave Dolin, Éditeur, 8, Place de l'Odéon.—*Pomus in Pom*: by Miss T. Tammes. An Account of an Apple Growing within an Apple; reprinted from the Proceedings of the Meeting of the Royal Academy of Science, Amsterdam, Saturday, Dec. 30, 1899.—*Japanese Botanical Magazine*, vol. xiii., No. 154.

VEGETABLES.

ONIONS SHOULD BE SOWN INDOORS.

THE practice of sowing the Onion-crop in the open ground will, I imagine, slowly but surely decline, till it becomes superseded by the superior method of raising the seedlings under glass, and transplanting them into the open quarters. It is impossible to conceive of anyone who has thereby gained immunity to the crop from the attack of maggots reverting to the ancient system. But immunity from that enemy is only one of the benefits that is thus obtained. The crop, as a crop, is increased to a very great extent, and what will perhaps be received with incredulity by some, the larger crop is produced with as little labour—possibly less than is required by the old system.

It has been assumed that transplanted Onions escape the Onion-fly, because when planted out the bulbs are already a certain size. That, to some extent, may be so, but two years ago our Onion-seed germinated so badly that a second sowing had to be made, and it was the beginning of March before this was done. To guard against failure, seeds were sown in the open on the same day that they were sown under glass. There was undoubtedly a difference in size in favour of the latter when they were transplanted, but hardly so much as to account for those raised in the open being destroyed almost to a plant, while very few of the others were much damaged.

The best time to sow for ordinary purposes is (in Scotland) in the first week of February, and in a recently-started viney the seeds will quickly germinate. As soon as the seedlings appear, remove them to a cool structure where growth will be slow and firm. As soon as the weather permits, the young seedlings should be taken out-of-doors, but given shelter, and, as soon as possible in April, have them transplanted into the quarter prepared for their reception. Not a few err in continuing the plants too long under glass; they make more growth, no doubt, but the less coddled plants in time outgrow them. Frost, it may be noted, does not injure the transplanted stock, and there is, therefore, no good reason why the period of preparation should be extended beyond the time necessary to produce a plant immune from maggot attack.

The one great difficulty I have experienced has been in ripening the bulbs. On that account it has been necessary to modify some parts of the treatment, and also to select suitable varieties. The practice of stimulating the crop, except by manures provided previous to planting, has been

discontinued. Large succulent and mild-flavoured Onions however cannot be produced except in soil in very high condition. Last year the best ripened bulbs were obtained from ground that had been heavily dressed with horse and cow manures for the last crop, and previous to planting was given only a dressing of superphosphate. It is not always possible to have ground so fitted for the

The question of varieties is not one of which can be produced Onions of the largest circumference, but which are the best for home use, and will so ripen under these altered conditions as to keep best. I have no better bulbs this year than those of James's Keeping. They are sufficiently large for culinary purposes, they ripened perfectly, and as a result have kept well. In addition to this or some

land (gr., Mr. Wm. Murray), by fertilising *Cypripedium Curtisii* with the pollen of *C. Sanderianum*, and which resulted in one of the finest garden hybrids of its class yet produced, the plant securing a First-class Certificate at the Royal Horticultural Society on January 23. The habit of the plant and the colour of its foliage resemble a light-coloured form of *C. Curtisii*, the dark-green markings on the light-green ground-colour being more obscure than is usual in that species. The lip and staminode are also strongly indicative of *C. Curtisii*, but the upper sepals and petals more closely approach *C. Sanderianum*, than which, however, it is much showier. The upper sepal is greenish-white, with well-defined chocolate-purple lines; the petals are whitish-rose, with dark purple spots, and the lip and staminode reddish-rose, the former darker on the nervures. It seems to be a very strong grower and free flowerer.

BOOK NOTICE.

VEGETABLES FOR EXHIBITION AND HOME CONSUMPTION. By Edwin Beckett.

WE have in this quarto volume of 216 pages the well-digested experiences of an observant gardener and very successful exhibitor at the principal centres in the country, and one therefore calculated to afford sound advice on the various subjects of which he takes cognizance.

As befits, the subject of the preparation of the ground forms the first chapter, and it is handled in a manner which struck us as erring too much on the score of brevity—indeed, much more would be desirable.

The teaching of gardeners and amateurs to dig light land in the autumn is somewhat doubtful wisdom. On shallow, light soils, it is decidedly extravagant in practice, the winter rains and snow in their percolation through the soil carrying off much of the valuable constituents of the manures to the drains, and out of the reach of the roots of the plants. Moreover, the upper layer of some light soils becomes so dry in the spring that not enough moisture exists in it to allow of the proper germination of seeds or the support of young plants unaided by applications of water. His method of dealing with heavy and wet soils seems better suited to light ones, and *vice versa*. What the author has to say about deep-digging for the production of superior vegetables is worthy of note, although some practitioners would demur to the advice, "always insist on the bottom being brought to the top" in the matter of trenching. We know of some lands which, if this advice was followed, would be unworkable on the surface for several years, and very unfavourable to the growth of plants.

We should have liked to have observed fuller references to the value of artificial manures in the kitchen-garden. Having disposed of the preparation of the land, the author at once starts off with the cultural methods to be pursued with the vegetables most esteemed in this country, and their preparation for exhibition. Here he is *facile princeps*, and the information he has to convey is very valuable, whether the cultivator is an exhibitor, or desirous only of having vegetables of the highest quality. This superiority cannot, of course, be obtained without the expenditure of much labour, in preparation of the soil, in affording a variety of aids to growth, and in methods of sowing. Among the Cabbage tribe touched upon is *Couve Tronchuda*, a most delicious if rather tender Cabbage.

The chapter on Potatoes is admirable, and we were pleased to note the author's objection to the exhibition of very large Potatoes; and, doubtless, to their production in the garden, although he does not say as much. He is also no advocate of the cultivation in gardens of numerous varieties. His own selection of varieties is not large.

The book, in spite of sundry shortcomings, is

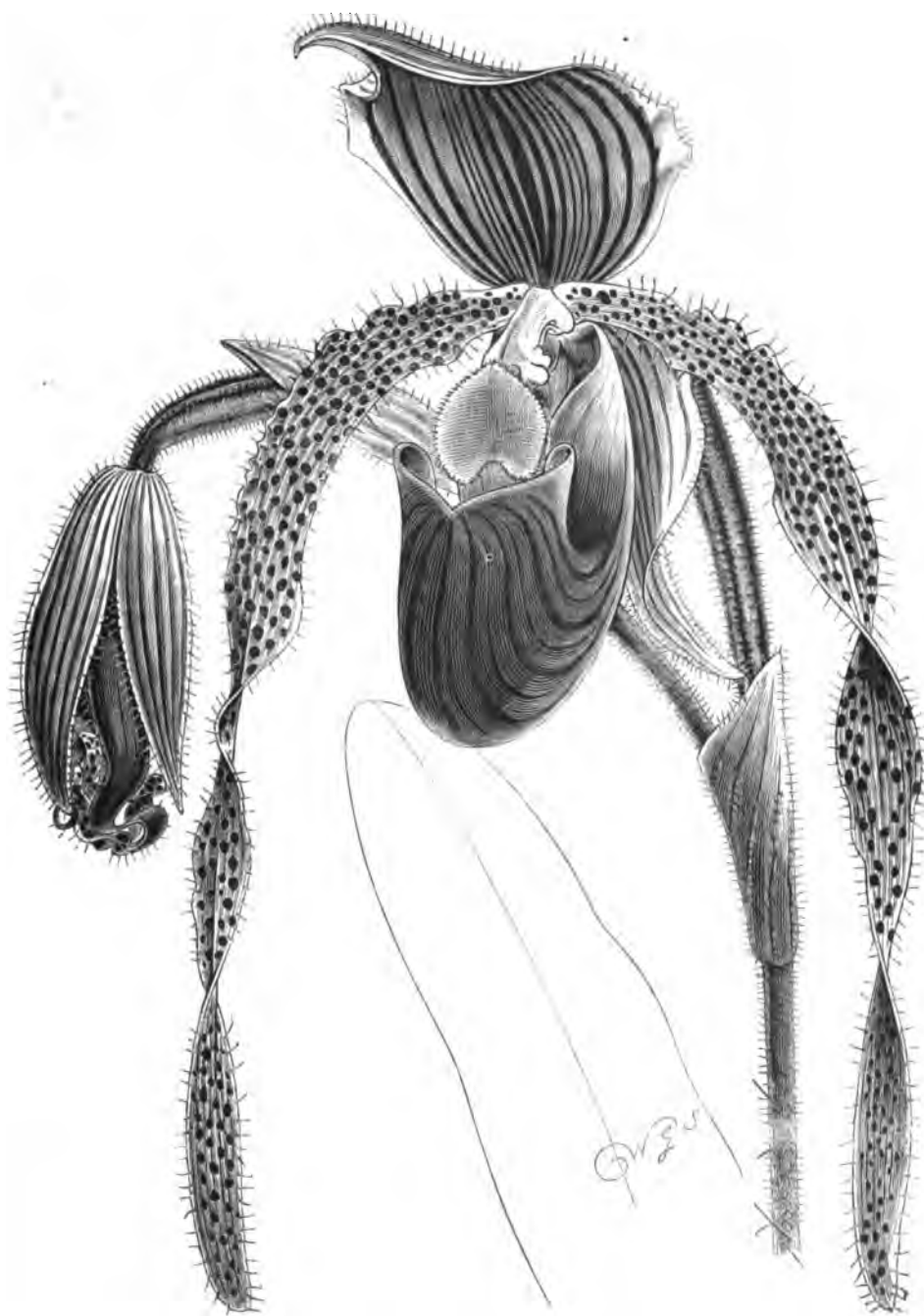


FIG. 23.—CYPRIPEDIUM × SANDERIANO-CURTISII.

purpose, but in any case it ought to be thoroughly pulverised by digging at least twice repeated, and the manure should be intimately incorporated with the soil. In addition, the soil should be compressed when dry as firmly as possible. There is no use in attempting to grow the crop so closely as by the old method. Fifteen inches—and perhaps better, 18 inches—between the lines, and not less than 6 inches between the plants, must be allowed. The summer routine consists wholly in surface-hoeing, repeated as often as circumstances will permit.

other variety equally valuable for spring use, one or more of the many large soft kinds for using in autumn and early winter should be cultivated. B.

CYPRIPEDIUM × SANDERIANO-CURTISII.

OUR illustration (fig. 23) represents the handsome hybrid *Cypripedium* obtained by Norman C. Cookson, Esq., Oakwood, Wylam, Northumber-

likely to meet the needs of the exhibitor and of the less ambitious cultivator alike, the information being sound and trustworthy. The pages abound in illustrations.

THE LATE JOHN RUSKIN.

I do not know how the death of Ruskin may affect others—it affected me almost as much as did Darwin's. In thoroughness of observation and exhaustiveness of research, these two profound students of Nature, and moulders and makers of science, resembled each other. Their combination of the most exact and acute observations with far-reaching and profound generalisation enabled the one to flood physical life with the light of evolution, and the other to illuminate the dark conventionalism of sterilised Art with the fascinating witchery of natural grace and beauty. With such a teacher and seer as Ruskin, the art of horticulture need no longer be hard or narrow. It is high time, and would be a fitting tribute to the life-work and genius of Ruskin, to break through our worship of formality in decoration and of crude masses of colour as now witnessed in many of our garden-landscapes and homes.

One longs to write of Ruskin as a gardener. This will probably be done by others. It will be easier to prove him a Master of the Gentle Art through his charming booklet, *Frondees Agrestes*, and opening almost at random we come upon a galaxy of gems at p. 125:

"Flowers seem intended for the solace of ordinary humanity; children love them; quiet, contented, ordinary people love them as they grow; luxurious disorderly people rejoice in them gathered, they are the cottager's treasure; and in the crowded town mark, as with a little broken fragment of rainbow, the windows of the workers in whose hearts rest the covenant of peace."

"Yet few people really care about flowers. Many indeed are fond of finding a new shape of blossom—caring for it as a child cares for a kaleidoscope; many also care for a fair service of flowers in the greenhouse, as for a fair service of plate on the table. Many are scientifically interested in them, and a few enjoy their gardens; but the blossoming time of the year being chiefly spring, I perceive it to be the mind of most people during that period to stay in towns. Passing through a valley in the Tyrol, near Landich, with a friend in the spring, a strange mountain was seen in the distance, belted about its heart with a zone of blue like our English Queen. Was it a blue cloud, a blue horizontal bar of the air that Titian breathed in youth, seen now far away, which mortal might never breathe again? Was it a mirage, a meteor? Would it stay to be approached? It was still ten miles. It was found not to be air, and did not vanish, but stayed patiently, expanding still into richer breath and heavenlier glow—a belt of Gentians."

"Perhaps few people have ever asked themselves why they admired Roses so much more than all other flowers. If they consider, they will find first that red is in a delicately graduated state, the loveliest of all pure colours; and secondly, that in the Rose there is no shadow except what is composed of colour. All its shadows are fuller in colour, owing to the translucency and reflective power of the leaves. Consider also the commonest forms of volatile substances, the invisible particles which cause the scent of a Rose-leaf, how minute, how multitudinous, passing richly away into the air continually."

We pass by his matchless description of the beauty of a fresh snow-drift, under the warm light of the clear mountain air, with the Alpine Soldanella venturing through, in language as true as it is vivid, a pensive, slender, fragile flower, whose small, dark, purple-fringed bells hang down and shudder over the icy cleft that it has chosen, as if partly wondering at its own recent grave, and partly dying of very fatigue after its hard-won victory.

If any reader can still doubt that our great

genius and poet had the head and heart of one of our first gardeners, let him sit at his feet a few minutes more and hear what he has to say about the grasses:—

"Minute, granular, feathery seed-vessels, mingling quaint brown punctuation and dusty tremors of dancing grain with the bloom of the nearer fields, and casting softness of filmy mist along their substances far away; mysterious ones move—not only with dew in the mornings, or mirage at noon, but with the shaking threads of fine arborescence, each a little belfry of grain-bells all a-chime. There seems little or nothing of notable goodness or beauty, very little strength, and very little tallness, and a few delicate long lines meeting in a point."

"The fields follow. All spring and summer is in them; the walks by silent, scented paths; the rests in noonday heat; the cry of birds and flocks; the power of all shepherd life and meditation; the life of sunlight upon the world falling in emerald streaks, and soft blue shadows, where also it would have struck upon the dark mould or scorching dust; pastures beside the pacing brooks, soft banks and knolls of lonely hills; thymy slopes of down overlooked by the blue line of lifted sea; crisp lawns, all dim with early dew, or smooth in evening warmth of barred sunshine, dented by happy feet, and softening in their fall the sound of loving voices, are summed by the simple words of meadow sweetness—Shakespeare's peculiar joy."

Little wonder that when such master-gardener, poet, and seer, is struck down, that even the daily press, in the crisis of the South African War, makes space to note the grandeur of his life, and the greatness and goodness of his work.

The *Scotsman*, of January 22, remarks: "Ruskin led the revival into the realm of art. He awoke the nation to a new and finer sense of the true and beautiful in form and colour. He shook the national taste out of its bondage and convention, purged it of its vulgarity, and taught the people to see and appreciate the beautiful. The revolution in taste that has taken place within the last fifty years has not been wholly his work, but he began it and inspired it; and even those who do refuse to acknowledge him as a master, are the fruit of the stimulus which he gave to the love of art and the sense of beauty." Thus closes its notice of Ruskin.

He wrote with all the exquisite clarity, and often much of the vehemence of the mountain streams, which he loved. To read him is to be infinitely refreshed, and to be filled with a new sense of the loveliness of the English language. Nor is it possible to foresee a time in the history of our literature when these qualities will not suffice to keep for him a place among the immortals. D. T. Fish.

Obituary.

JAMES FRASER.—In all probability the father of Scotch gardeners has passed away in the person of the late Mr. James Fraser, gardener, who died at Castlehill, Turriff, on the 18th ult., aged ninety-eight years. Mr. Fraser was engaged by the late Dr. Adam, as gardener at Ardmiddle House, Turriff, in the year of the disruption, 1843, and for the long period of thirty-three years he conducted gardening operations at Ardmiddle with great acceptance by his employers.

The gardens and grounds at Ardmiddle saw many improvements carried out under Mr. Fraser's management, and during his long engagement he served three generations of the family. It was with great regret that the late Mr. Milne parted with his faithful and trusted servant twenty-five years ago, when Mr. Fraser retired from active duty, and took up his residence in Turriff, which just now, by his death, mourns the loss of its oldest inhabitant. Mr. Fraser was a pawky, shrewd, typical Scotchman, and a thorough gardener.

Locally, Mr. Fraser enjoyed a reputation as being an authority on all matters connected with horticulture, and in his day few could out-do him in the

art of growing good vegetables and hardy fruits; while from personal remembrances I can speak of him as an expert in the cultivation of Strawberries, Melons, and Cucumbers. The immediate cause of Mr. Fraser's death was a sharp attack of influenza. John Mackinnon, Terregles, Dumfries, N.B.

CHARLES TURNER.—We regret to announce the death of Mr. Charles Turner, head-gardener for eight years to Hatfield Harter, Esq., the present proprietor of Cranfield Court, Bletchley, and his predecessor, the late Rev. G. G. Harter. He passed away on Monday, January 15, at Cranfield Court Gardens, at the age of sixty-six years. The deceased began his gardening career in the gardens of Blenheim Palace, where he became foreman; he went then to Middleton Park, Cirencester, and afterwards to Gunnersbury Park, and the Crystal Palace Gardens.



HOME CORRESPONDENCE.

SALE OF HORTICULTURAL POISON.—Whilst it is evident that the use of weed-killers, vapours, and other very potent poisons will still go on in gardens, as they seem to have now become indispensable, yet the law concerning them as manifested in several legal decisions, seems to be so singularly uncertain that it is very essential for the welfare of the trade concerned in the sale of these substances that some defined and authoritative decision should soon be given on the matter. The nature of that decision, when furnished by some Superior Court, seems likely to be found in that given in the Court of Queen's Bench in the Worcester case, and reported on p. 41. Here, at least, it is shown that any person, seedsman, or otherwise, may become the intermediary between the purchaser and the vendor, so far as the passing of the poisonous compounds are concerned, but may not be the actual vendor. That is not an unreasonable arrangement. Doubtless many rightly-thinking persons will hold that the manufacture of these dangerous compounds should be in the hands of certificated chemists. But once in their ordinary vessels or receptacles, where they are, whilst still enclosed, as safe as gunpowder is, similarly enclosed, it cannot matter whether they be dispensed through any ordinary person or agent, or through a certificated chemist. Thousands of cases have occurred of death resulting from poisons obtained from chemists; but I have not heard of one resulting from horticultural poisons. This view, which was that of the Court of Queen's Bench, seems also to be that of the Lord Advocate of Scotland. It would, then, be only needful, for any seedsman or sundries trader to describe himself as agent for such and such compounds; and orders sent through him by gardeners or others, for use in gardens, or other proper purposes, could be met without troubling chemists, or offending against the law. A. D.

COMET RED CURRANT.—Mr. A. H. Pearson, in his paper on "The Fruit Crops of the Year," which was published in the *Gardeners' Chronicle*, maintains that Comet and the Red Versailles Currants are identically the same. Your correspondent, "A. D.," in the *Gardeners' Chronicle* for December 16 last, also states this to be his opinion, and he suggested that others who have fruited it should come forward and give their experience. We have hoped that others interested would give their views of the variety, in order to settle this disputed point. We ourselves, in common with many others here in the United States, would like to know whether we are increasing for distribution a new or an old variety, which, however so good and desirable, ought not to be brought forward as a superior new sort if such is not the case. John Charlton & Sons, Rochester, N.Y. [Your own experiment with this Currant will be most likely to convince you one way or the other. Ed.]

THE BROAD-LEAVED DOCK OR DOCKAN.—This well-known plant is one of the most troublesome weeds with which the farmer has to contend. It grows in pastures, by waysides, in yards, and neglected gardens, but prefers cultivated soil. It is refused by cattle, but it is said to be eaten by fallow deer with such avidity that it is rare to see a Dock growing in a deer park. The leaves are often used in Scotland for wrapping round butter and cream-cheese; hence in some places the plant has the name of "Butter-dock." Most of us have applied it when pained by the sting of a Nettle. The expressed juice of the Honeysuckle is, however, a far more efficacious remedy against the sting either of plant or insect than the Dock-leaf, the sole virtue of which seems to consist in its coolness. The root of the Dock is very astringent. It was formerly used by dyers. It is remarkable that the Dock never flourishes in poor soils. The following anecdote refers to this peculiarity. A farmer who took a small farm in the north, and entered it at the usual time of Whit-Sunday, observed that there was not a single Dock on his land. Anyone knowing the troublesome nature of this weed might have supposed that this was a source of congratulation. The farmer, however, better knew the nature of land and its weeds, and nine months after he had entered on his farm he called on his proprietor to inform him of his intention of quitting it. The landlord inquired the reason of this decision, as the tenant had as yet no opportunity of seeing what crop he could raise in the fields. "Sir," observed the farmer, "there was not a Dock on it at Whit-Sunday. I brought Dockans from different places and have planted them, but they have not answered at all, and I know that what will not grow Dockans will not grow Corn." *J. Kennedy, Roydon, Essex.* [In some parts of Switzerland the Dock leaves are dried and given also to the pigs in winter. A great deal of starchy food is contained in the seeds, which is allowed to go to waste. *Ed.*]

A GRAFTING PROBLEM.—The effect of the stock upon the scion is illustrated in an interesting manner in a grafting-process by Mr. George Inglefield, Tedworth, Marlborough, who a few years ago grafted Ribeton Pippin Apple on to Blenheim Orange. A few days since Mr. Inglefield sent me some samples of the Ribeton Pippins, and they appeared to justify his contention that the flesh of the Ribeton Pippin had changed to some extent in texture, having become softer, while the flavour might be said to be intermediate between the two varieties. Mr. Inglefield gathered but few Ribeton Pippins from the grafted tree this season, but they were alike, and the fruit certainly appeared to have undergone some transformation, but whether sufficient to constitute a distinct variety, remains to be seen. No doubt Mr. Inglefield will note the results another season, to ascertain if his conclusion that the stock has in this case materially affected the fruit of the scion. *R. D.*

EXHIBITING VIOLETS.—Our old friend, Mr. E. Bennett, can be hardly oblivious of the fact that Violets have been exhibited in bunches at various November shows, sometimes with success, sometimes otherwise. Probably the chief reason why classes for three or six bunches of these flowers are not popular with gardeners is, that to gather so many entails great sacrifice; whilst, wherever Violets are grown, they are in daily demand, and are therefore kept rather hard-gathered. Then exhibition committees give as a reason for not offering prizes freely that the flowers, owing to their small size and colour, make, after all, a poor show in November, especially if the light in the place is not good. Still, the great thing for what is advocated is to have a very plentiful supply of good flowers. The most likely form of class to attract competition with Violets would be that of one button-hole, and one ladies' spray of Violets only; or of a small hand-bouquet of a ground of Violets and any white flowers. *A. D.*

— I was pleased to read Mr. Bennett's remarks about Violets being included in schedules of Chrysanthemum societies. At the Royal Aquarium shows stands of Violets, especially of the larger-flowered varieties, would be very acceptable. I noted at the November Chrysanthemum exhibition at that place a small stand consisting of the principal varieties, which everyone admired. As Mr. Bennett suggests, the bunches of blooms should be set off with their own foliage; and plants should be shown as grown in pots. *F. Strong, High Grove, Middlesex.*

ROOT-PRUNING OF APPLES AND PEARS.—Notwithstanding that the advantages that under certain circumstances are to be obtained by root-pruning fruit-trees have been repeatedly insisted upon in the press, there are still many unfruitful trees that only need attention in this way to bring them into a fruitful condition. Perhaps the kind of trees that most need to be root-pruned are ordinary-sized bushes and pyramids of Apples and Pears. As soon as planted they have a tendency to send tap roots into the sub-soil, and this encourages strong growth, and consequently severe pruning. Thus gross unfruitful wood is produced and cut away at the expense of fruit spurs. The operation of root-pruning is best done immediately before the fall of the leaf, although it can be safely done in open weather at any time during the resting season. It should be carried out as follows. Expose the roots to within about 3 feet from the stem, or further, according to the size and age of the tree, and as the work proceeds shorten the strong ones by a clean upward cut inclined to their points. The fibrous roots should be carefully preserved. Next undermine the tree and sever the tap roots smoothly. The hole may then be firmly filled in, fresh soil in preference being used for the purpose, and as the work proceeds raise the ends of the strong roots, if deep in the soil, and spread out regularly the fibrous ones. Young trees may have all their strong roots shortened at one time. Those old enough to have filled their allotted space should, however, in order to avoid a severe check, be operated upon in two successive years, one half of the tree being attended to each season. We have had, owing to the character of our soil, ample experience of the value of root-pruning in necessary cases. The following remarks are of a few varieties of Apples grown as bushes of the ordinary size, which are not generally considered suitable for that purpose. In the autumn of 1897 we root-pruned thirteen Bramley's Seedling that had been planted four years previously; which had made very strong wood, and had filled their space, but produced very little fruit. The following season very little growth was made, but an abundance of fruit-buds were formed, and last year a very heavy crop of fruit resulted. In 1898 we treated in like manner seven Blenheim Orange, and five Gloria Mundi, which were in a similar condition to the Bramley's; and at the present time both varieties are abundantly furnished with flower-buds. I have selected these well-known kinds for description from several varieties of Apples and Pears that have been similarly treated. Advantageous as root-pruning is in some cases, it will not insure a crop the year succeeding the operation, as some of its advocates claim. At the earliest, its profitable results are not seen until the second year. *Thos. Coomber, Hendre Gardens, Monmouth.*

APPLE NEWTON WONDER.—The remarks of your correspondents are interesting, as the spotting appears to be the one bad point in the Apple mentioned. I have had five years' experience of its behaviour, and can testify to its good quality as a keeper; as a dessert and cooking Apple it has few equals, in my opinion. We have regularly had them in good condition in April. We have it on the Paradise stock, grown as espaliers; and also grafted on an old Crab stock. On both stocks it is a most regular and free cropper, but whilst the espaliers give us grand fruits, weighing up to 14 ounces, with about one-fourth of the fruits spotted, the grafted tree gives us smaller fruits abundantly, with no signs of spotting. Can the stock have anything to do with the disease? *G. A. R., Nottingham.*

THE INFLUENCE OF THE STOCK UPON WORKED VINES.—The Vine-grower always finds interest in the inarching, or bottle-grafting of his Vines, unlooked-for results, favourable or otherwise, often following the union. I once saw a vineery filled with varieties of Vines which became converted into a purely Muscat vineery by the act of inarching on to the laterals growing near the bottom of the rods Vines of a year old, the old rods being removed as fast as the inarched young Vines began to fruit. In this case it could be seen which were the better foster parents. Gros Maroc and Gros Colman made the best growth; and Lady Downes was the least satisfactory. I believe with Mr. Temple that Gros Guillaume makes a poor stock upon which to inarch another variety; moreover, it has so little merit that it is only found in large collections, or because the owner has a fancy for it. I remember

an instance of a scion of Muscat of Alexandria being worked on the Syrian, which afforded the singular result that the Muscat flavour was quite absent from the fruit borne by the scion, whilst all other characteristics were undisturbed. The flavour of the fruit was exactly that of the Syrian. Black Hamburg I have tasted of a very superior flavour when growing on a Vine of Mrs. Pince, the object of the union in this case being to change the character of the crop, and not to accentuate the quality. Gros Maroc, itself a strong grower, is sometimes rendered freer in fruiting by being worked on the Black Hamburg stock, as is also Gros Guillaume, which, on its own roots, is very shy, unless carefully pruned. *W. S.*

THE "HATFIELD" CURE FOR RED-SPIDER.—I have followed with some interest the correspondence that has appeared of late in the *Gardeners' Chronicle* upon this subject, because anything that can be proved capable of destroying red-spider without injury to Vine or fruit-trees would be a boon to all gardeners. Sulphur-fumes are no doubt powerful to annihilate insects when diffused by fire-heat [or slaking lime. *Ed.*], but they have the drawback that the slightest overdose destroys vegetation equally surely when the fumes are confined in a glasshouse. Mr. Norman does not say whether he moistens the sulphur before using it; so I take it, the dry sulphur is placed in the tins, and heated by the direct action of the flame from the spirit-lamp. I should have expected that it would have been safer from flaming if wetted, and the vapour given off jointly with steam; but as sulphur is not easily soluble in water, probably there would not be much gained by the addition of water. Would Mr. Norman advise ordinary flowers-of-sulphur, or another form of it? Sublimed sulphur is the best for applying to the hot-water pipes, being very effective and safer, though the fumes given off are less perceptible compared with the more commonly used article. No doubt, as the editorial footnote points out, the practice needs the most careful management, and further experiment and report from those who have thus proved its value and safety would be greatly valued by all those who have similar trouble to deal with. *W. S.*

BIRDS BUILDING IN SHRUBS ON WALLS.—In reply to Mr. Lynch's enquiry respecting the above, I may state there is a wall here about 16 feet in height facing the north, and about sixteen years ago it was suggested and desired by my employer to cover it with some evergreen to hide it from view. Having a quantity of young Laurel-plants of the common variety, we planted them at the foot of the wall and about 2 feet apart. The soil generally being in a moist condition, the Laurels in about five or six years reached the top of the wall. As they grew they were tied up with string, any superfluous shoots being cut away. The only pruning they had was the cutting off of the foreright shoots with a pair of *sécateurs* once a year, in March or April, being all that was required; a very even evergreen screen is presented, which looks well. The spurs at the present time stand out from 9 inches to a foot from the wall. Blackbirds and thrushes build their nests in the Laurels plentifully (rather too much so). The wag-tail's nest I have also found, with a young cuckoo for a tenant in it at midsummer. *A. Harding, Orton, Peterborough.*

THE GINKGO BILOBA.—The interesting note in the *Gardeners' Chronicle* of Dec. 23, must have given pleasure to all admirers of the Maiden-hair-tree, and the magnificent specimen then illustrated is worth going far to see. The Panahanger-tree is acknowledged to be one of the finest in the kingdom, and when first I saw it I was greatly surprised. It is a great pity that in most of our parks and gardens, whether in town or country, this noble tree is conspicuous by its absence. The Maiden-hair-tree is well adapted also for cultivation in large tubs and vases, and if these be draped with Vincas (Periwinkles), they are very ornamental for positions on the balcony and terraces. The tree, when grown in tubs, may be trained either as a pyramid or bush. It must be remembered, however, that the tree is deciduous. *George MacKinlay, West Park Gardens, Amptill.*

CHRYSANTHEMUM MADAME CARNOT.—It is understood that the crimson sport of this variety originated with Mr. F. Perkins, at Oxford, a son of Mr. F. Perkins, of Leamington, and that it

occurred upon a plant of the type, not one of its varieties. The transition from white to crimson naturally occasions an inquisitive interest amongst Chrysanthemum growers. *J. E. J.*

FLORISTS' FLOWERS.

TUBEROUS-ROOTED BEGONIAS.

Now is a good time to raise a stock of plants of these the most useful of florists' flowers, whether it be for the decoration of the greenhouse or for furnishing the flower-beds in summer. The raising of Begonias from seed is interesting, and the results surprising, especially when working with the best strains. For the flower garden it is well to grow the plants in batches of separate colours, as a better effect is then obtained. Sow the seed in well drained pans, filled with fine sandy soil, and covering the seed with sand lightly. Place over the pans sheets of glass, and cover with moss. A gentle and moist bottom heat in an even temperature of about 65° will suffice to give the plants an early and robust start. Directly the tiny seedlings show through the soil, remove the moss, and tilt the glass on one side so as to admit air.

The seed from Begonias is irregular in germination, and the seedlings are as irregular in growth. Directly any of the plants are large enough to handle, carefully lift them from the soil and prick them off into other pans or pots. Fill up the holes in the seed-pan with sand, so that other seedlings may not be injured. Give the plants a position quite near to the glass in the same temperature; water them carefully, and syringe them twice daily with tepid water. Shift them on into other pots or boxes as fast as the growth demands it. For bedding purposes, shallow boxes are the most economical. Maintain an even temperature until the plants are ready for hardening-off preparatory to going to the greenhouse or cold frames. Fluctuations of temperature, coupled with cold draughts will tend to cripple growth. Like all other succulent plants tuberous rooted Begonias require a steady uninterrupted growth. *E. Molyneux.*

SINGLE FLOWERED CHRYSANTHEMUMS.

The notes on p. 18 concerning this section of Chrysanthemums is marked by appreciation of such varieties. For fifteen years I have advocated their cultivation for exhibition and general purposes, feeling assured that they would be valued in the decoration of the greenhouse and dwelling, and as cut-flowers.

Many good gardeners who at that time poo-pooed their value, have now a friendly word to say for them, having doubtless realised their value. There is no section that is so well suited to the conveniences at the command of the amateur as single-flowered Chrysanthemums. No other plants afford so large a quantity of flowers, or occupy so small an amount of space, and certainly no other section lasts longer in bloom.

At one time there was an objection—and a reasonable one, too—to the somewhat dingy, washed-out shades of colour; now we find the brightest colours among them. I need merely to instance the varieties—Framfield Beauty, a rich crimson; King of Siam, crimson; Mr. F. W. Travers, Rev. Remfrey, Poinsettia, and Souvenir de Londres, all most brilliant in colouring. Even in neutral tints there is much variety; while pure white and rich yellows abound. Then as to form of flower, there are numerous types from which to choose. There are long Japanese-like florets, both thinly displayed, and also closely-arranged florets: the neatly-formed florists' type, in middle-sized blooms; and the small-flowered, prim, Daisy-like blossoms, as well as cupped and recurved forms. In fact, there is almost an infinite variety of form, size and colour of flowers, as well as much difference in habit.

In associating Chrysanthemums with other flowering-plants, those with single flowers harmonise the best, being light and graceful. Another

point in their favour, which cannot be advanced for any other section in the same degree, is the delicate perfume which some of them possess. Two or three plants of Mrs. Langtry, for example, are sufficient to perfume a good-sized greenhouse. Their cultivation is simple; there is no anxiety and worry about timing the plants to get the right buds, for all buds are right under ordinary treatment. Stout cuttings inserted in January, two in a pot, rooted and grown on together, once pinching out the point of growth, and afterwards allowing the growth uninterrupted freedom, is all that is required. Abundance of water, especially when the roots are restricted to small (7-inch) pots, as many plants may be, is, of course, a necessity. Extra early housing of the plants is not imperative, as the buds do not suffer nearly so much from night dews and light frosts as do varieties with thick-fleshed florets, as we find them in incurveds and Japanese. For growth against south, east, and west walls, single-flowered varieties have no equal for furnishing large quantities of blossom in the autumn. *E. Molyneux.*

CALVAT'S NOVELTIES OF CHRYSANTHEMUMS.

Many of the new catalogues of the French seedling raisers are already to hand, but the chief interest will undoubtedly centre itself on Mr. Calvat's novelties. These for some years past have given the best results both here and on the continent, and although he has now many rivals, there are but few of his own countrymen that can hope to compete with him, by virtue of the very exceptional strain he has secured.

It does not often happen that we can get a glimpse of continental novelties twelve months before they make their appearance here, but having seen a goodly number both in Paris and Lyons last year, a forecast of some of the best may be useful to the novelty-hunter in England.

Mr. Calvat's set for 1900 comprises twenty-nine varieties, and he has secured altogether twenty-five First-class Certificates for them, at Paris and at Lyons, which may be considered the chief head-centres on the continent for such awards.

To my taste, and regarding these novelties from the exhibition standpoint only, Mme. Adèle Cordonnier-Wibaux is an immense Japanese of a reddish-crimson reverse, and centre golden. Then comes M. O. de Meulenaere, a fine large-sized flower of incurving Japanese form, in colour a deep reddish-chestnut-crimson, with bright golden reverse. Very striking, too, is Mme. Alice Capitant, which has long narrow florets of a beautiful shade of white slightly tinted. Mme. L. Druz is another giant, its colour a deep apricot-yellow. Salomé is deep and globular; it has narrow florets, and colour is a very deep golden yellow. Mme. A. de Franqueville d'Orthal, rosy-salmon with golden reverse, is also an immense bloom. Marquis Visconti-Venosta, is of a deep lilac-mauve tint, with reverse of silvery pink. Mme. V. Delavier has very long florets, colour pale mauve. All these as shown are undoubtedly as promising as any we have had, and following these in order of merit, I should say that M. R. Gremer, M. R. du Meunie de Montchauveau, Mme. André Bénac, Mme. Pelerin Allatouche, Mme. Christian Nano, Mme. J. Steel, Mme. Avizard, and Mme. Philippe Roger will rank next, and their descriptions can be easily obtained from Mr. Calvat's catalogue.

The other novelties included in his new set for 1900 I have not seen, and must therefore leave them to speak for themselves later in the year. *C. Harman Payne.*

POTATO-GROWING EXPERIMENTS.—Among the experiments which have been carried out by the Nottingham University College for two years in succession are some very important ones on the effect of manures on Potatoes, and which were carried out at Althorpe in Lincolnshire. The plots were in each case one-sixth of an acre in extent, and were duplicated by trials on eight different varieties of Potatoes. In all, fourteen different combinations of manuring were tried, together

with an unmanured plot in each case. There were thus 120 plots, making 20 acres in all, devoted to the experiment. This is far more extensive, and on larger plots, than the generality of experiments. Taking the whole of the experiments, the best results were obtained by the use of 1½ cwt. of nitrate-of-soda, 1½ cwt. of sulphate-of-ammonia, and 6 cwt. of superphosphate-of-lime per acre. This gave a crop of 10 tons 9 cwt. 3 qrs. per acre, as against 8 tons 1 qr. per acre on the unmanured plot. The increase from the manuring was thus 2 tons 9 cwt. 3 qrs. per acre, which at 50s. per ton had a value of £6 4s. 6d. As the manures cost £2 1s. 6d., this gave the satisfactory profit of £4 3s. from their use. The next most profitable manure was 2 cwt. of nitrate-of-soda per acre. This gave a crop of 9 tons 16 cwt. 2 qrs., or 1 ton 16 cwt. 2 qrs. more than the unmanured plot. This increase of crop was worth £4 10s., and as the manure only cost 16s. 6d., there was a profit of £3 13s. 6d. per acre from its use. The smallest profit from any manuring resulted from the use of 3 cwt. of sulphate-of-ammonia and 3 cwt. of dissolved bones. This gave a crop of 9 tons 3 cwt. 3 qrs., an increase of 1 ton 3 cwt. 2 qrs. per acre over the unmanured plot, the value of the increase being £2 19s. As the manures cost £2 6s. 6d. per acre, the profit from their use was only 12s. 6d. It is well worthy of note that although last year was such a dry season, every one of the fourteen combinations of artificials left a profit from their use. *The Newcastle Daily Chronicle, January 19*

SOCIETIES.

MISCELLANEOUS.

Aberdeenshire Agricultural Research Association.

—The annual meeting of the Executive of this Association was held in the New Chemical Laboratory, Belmont Street, Aberdeen, on January 20. There was a large attendance, and Sir J. Clark, Bart., of Tillypronie, in the absence of the President, occupied the Chair.

Mr. Jamieson, Director of the Association, submitted the financial report for the year, which showed a deficiency of £35. This sum, it was explained by Mr. Jamieson, will be borne by him, thus leaving the Association in a position to start the experiments for this year without encumbrance. A most satisfactory increase in the number of subscribers was intimated. Mr. Jamieson then submitted his report of the experiments conducted during the past year.

The main inquiry engaging the attention of the Association at the present time is the cross-fertilisation of Oats by a natural method, which might be adopted with benefit on a large scale without any extra outlay.

The subordinate inquiries in the report refer to the "Permanence of Rye-grass," to the "Effect of Manure on Grass," to the experience of the "Ten Year Rotation," and the possibility and great advantage of keeping grasses down for seven years; to the treatment of "Old Pasture," to a "New Grass Recommended," and to "Catch Crops." The report was submitted by Mr. Jamieson, who strongly commended the work of the Association to the support of all interested in the cultivation of the land, and pleaded for more assistance being given to the work he was performing.

A prolonged discussion followed on the subjects under trial, which was taken part in by most of the members present, and the meeting concluded with a cordial vote of thanks to Sir John Clark for presiding.

Reading and District Gardeners'.—The members assembled in force on the 22nd inst., on the occasion of the annual tea and smoking concert, which took place in the Abbey Hall, lent by Messrs. Sutton & Sons. The President, Mr. C. B. Stevens, presided at the tea, which commenced at 6.30, the company including Mr. Leonard Sutton, Mr. M. H. F. Sutton, Messrs. Fry, Hinton, Macdonald, Cox (Chairman, Vice-Chairman, Treasurer, and Secretary), Burton (Bexley Heath), Pope (Chairman of the Wargrave Gardeners' Society), Trollope (Whitchurch), Botley (Maldenhead), Prince (Arboretum), Cretchley (Twynford), C. Townsend (Sandhurst), Chamberlain (Shinfield), Nicholls (Malden Eridge), Riggs, Fares (Caversham), Cox (Calcutt), Osborn (Three Crosses), and others. The tables and hall presented a bright and pleasing appearance, having been decorated under the supervision of Mr. Macdonald with foliage and flowering plants sent by Mr. J. Woolford, The Gardens, East Thorpe, and Messrs. Sutton. The Chairman presented to the winners the prizes won in the Essay competitions. At eight o'clock the smoking concert commenced, presided over by Mr. Leonard Sutton, which was the best ever held at these annual gatherings. During the evening Mr. Ketley recited Rudyard Kipling's poem "The Absent-Minded Beggar," and the sum of £2 5s. has been sent on to the local war fund.

—Chemical manures was the subject of a lecture delivered by Mr. F. W. E. SHRIVELL, of Thompson's Farm

Tonbridge, at the fortnightly meeting of this Society, on the 29th ult. The lecturer laid before the members the results of the various experiments carried out at Tonbridge during the past five years with chemical manures on vegetables and fruit crops, under the auspices of the Permanent Nitrate Committee, who wished to find out whether dung could be dispensed with altogether, relying solely on chemical manures. Six new members were elected.

Wargrave and District Gardeners'.—The annual meeting took place on January 17, when Mr. W. Pore presided over a good attendance. The officers and committee for the present year were elected, the annual report and balance-sheet presented and adopted, and the prizes and Certificates won by members last year distributed. Mr. Geo. Hatch, gr. to Sir John Edwards-Moss, Bart., Thamesfield, read a paper on "Vine Culture." He advocated three-quarter span houses facing south, with front and top ventilation, with a trellis not less than 16 inches from the glass. He dwelt on the careful construction of the border, and gave advice on the proper method of mixing the soil; also upon the time of planting, pruning, disbudding, propagating, the temperatures necessary at various stages of growth, and thinning.

Bristol and District Gardeners'.—The fortnightly meeting was held at St. John's Parish Room, Redland, on Thursday, 26th inst. Mr. C. Lock presided over a large attendance. A paper was read by a member from the Cardiff Gardeners' Association, Mr. J. Graham, under the title "Gleanings from a Horticultural Class." Mr. Graham dealt with a variety of subjects, all of great importance to gardeners such as soil and its constituents, bacteria, thermometers, dew and rain, laying out of pleasure-grounds, rockery formation, draining of land, plant diseases, &c. He dealt with the subjects in an able manner, affording much useful information. Mr. Graham strongly urged the formation of botany classes in connection with gardeners' associations; and claimed that a knowledge of theory was a great help to the gardener in his work, and pleaded for more sympathy between head gardeners and their assistants. He was cordially thanked for his attendance and lecture. An exhibit of much interest was provided by Mr. GRAHAM, who showed over fifty dried specimens of British plants, which attracted much attention. A motion of sympathy with the relatives of the late Canon Ansley was passed. The late Canon was a vice-president of the Association during his residence at Redland, and took a keen interest in the work from the time of its formation.

THE APIARY.

Temperature and Brood-rearing.—Question: Can it be possible that 100° of heat is required for brood-rearing? If I remember rightly, I read a few days ago that 100° is about the temperature the bees maintain inside the hive when rearing brood; and if the heat in the sun is greater than that, the bees, by fanning at the entrances, cause a current of air to pass through the hive so as not to allow the temperature of the hive to rise higher than this. It seems to me 100° is altogether too high, and that 80° to 85° is much more correct. Answer: I think I saw something similar to what the questioner alludes to in one of the bee papers, and this altogether with what he says, leads me to believe that but few have a correct idea regarding the degree of warmth in which the bees keep the eggs, larvae, pupæ, &c., during the time they are rearing their young. While Nature has so ordained that a good colony of bees can form a living hive, as it were, in which to rear their brood; yet brood-rearing is very largely dependent on the hive, and before I take into consideration the real subject touched upon by the questioner, I wish to say a few words regarding that part which the hive plays in this matter of brood-rearing. In spring weather the capacity of a hive to retain warmth, the same coming in close contact with the bees, has much to do with prolific brood-rearing and the securing of our bees in time for harvest. The more heat we can retain in the hives the more honey we can save, for all are aware that the "fuel" that the bees "burn" so as to raise the temperature of the cluster to where they desire it, is honey. Again, the more "fuel" (honey) the bees burn, the sooner their life wears away, for it takes an effort, even on the part of the bee, to keep the furnace (the bee) heated, and filled with fuel as fast as it is consumed. Hence we see the important bearing that a good warm hive has in advancing our interests in the spring. Why do I say "in the spring"? Because at that season of the year the temperature outside the hive is very much lower than that which is required by the bees to rear brood, especially during the night. If, as I saw in print not long ago, bees could rear brood with a temperature of only 60°, then there would not be so much need of a warm hive, for we have many spring days wherein the mercury goes

as high as and even higher than that. If those figures were correct, then our bees could rear brood in April and May, here in the north, to as good advantage as they do now in July and August. Then, if the temperature of brood rearing were only 80° to 85°, as our questioner seems to think, should the temperature run higher than this, would it not be unbearable by the brood? And if this is true, what would the bees do when the mercury stood about the "nineties" for days in succession, as we frequently have it even in this locality? Would it be possible for the bees by fanning the air to give a less degree of heat than that very air contained. Some years ago, having a desire to learn for a certainty of these things for myself, I began to experiment as follows:—I procured a self-registering thermometer, and placing it near the fire until it showed 125° to 130° of heat, I set the register, wrapped it in some heated cloths, and immediately placed it in the centre of a brood-nest of a medium-sized colony. This was on a very cool day, some time in the month of May—about the middle as nearly as I can remember; that night water was frozen so as to form ice nearly as thick as window-glass, the time being selected on purpose. The next day, about 2 o'clock, it had warmed the air enough, so that the bees were flying freely, when I took out the thermometer and found that the coldest point reached in the brood-nest during the cold night was 92°. Since then I have tried the same experiment on both strong and weak colonies. Although at no time did it freeze so hard as at the first trial, yet in no colony that was rearing brood successfully did I ever obtain a less degree than the one mentioned, while some of the stronger colonies gave a temperature of 95° on nights when there was some frost. *Expert.*

LAW NOTES.

AN ALLEGED LONG FIRM.

JOHN WILLIAM TAYLOR, book-maker, Newcastle-on-Tyne, was charged, at the Bedale Police Court, with obtaining by false pretences 2500 trees, value £15, from Messrs. Towler & Sons, Askew, Bedale, on December 8, 12, and 19. The prisoner on December 8 ordered 1000 small Fir-trees as Christmas-trees, 1000 on the 12th, and 500 on Dec. 19. On the note-paper he used was a heading printed "J. W. Taylor, fruit and vegetable salesman, Green Market, Newcastle-on-Tyne," with a telegraphic address, and this, Mr. Towler alleged, had led him to conclude that prisoner was in a large or wholesale business, and he therefore sent the trees. Evidence was called to show that prisoner had no shop in the Green Market, but occasionally he had a stall outside in Newgate Street, Newcastle. He was remanded to take his trial at Leeds Assizes.

CULTURAL MEMORANDA.

VINES FROM EYES.

If Vines are going to be raised from eyes, no time should be lost in making suitable preparations. Well-ripened shoots having been removed from the Vines, cut these into portions containing each a plump, healthy bud, severing the shoots with a sharp knife in a slanting direction half-inch above a bud or "eye," and $\frac{3}{4}$ -inch below. Having ready a number of 60-pots, clean, and with one crock over the hole, place in them a little rough loam, and afterwards some of the finer portions of a lightish loam, with a little mortar-rubble broken finely, and some decayed manure. Having filled the pots, press the pieces of Vine-shoots into the soil till the top of the bud is on a level with the surface, a pinch of sand being placed under the "eye," and also over it. For a week or ten days the pots may stand in a vinery that has been started for forcing, and then be plunged in a hotbed frame with a bottom heat of 80°, and a top-heat of 65° to 70°. The soil in the pots must be kept fairly moist, and in order to preserve moisture without there being the need to afford

water, moss may be placed on the surface until the buds begin to grow, when the moss must be removed. It is prudent to put in a greater number of eyes than are wanted, as some of the buds may fail to send up a shoot, even when the pots are well filled with roots. After the second growth has begun, the eyes may be repotted, using as a soil one that is a little heavier and richer. Do not over-pot the plants, or the soil may become sour before the roots have taken possession of it; neither should water be applied very freely. Put a small stick to each Vine, and secure it thereto; remove all side-shoots. The plants should be kept in a warm, moist atmosphere, and not receive any check. These young Vines, if grown freely, and not allowed to get pot-bound, will be fit for planting out in the months of April or May, and will make fine canes the first summer. For many years I used to grow Vines for fruiting early in pots, from eyes struck in the month of January, fruiting them the following year. The Black Hamburgh, Foster's Seedling, and Madresfield Court Muscat are the principal varieties on which to depend for early crops. At one time Madresfield Court Muscat was not so much thought of as now, owing to the tendency of the fruits to split at the last swelling; but with care this may be got over, and when well finished it is one of the best black Grapes that we possess. *H. Markham, Wrotham Park, Barnet.*

IRELAND.

THE DUBLIN MUSEUM.

ON Tuesday, January 16, Professor Johnson, D.Sc., gave a highly instructive lecture on seeds in the herbarium attached to the above. The discourse was given in the evening; and was well attended, especially by the members of the seed-trade (for whose special benefit it was designed), also by gardeners. He pointed out that the term seed was vague, when viewed from the standpoint of the seller, namely, it included more; and by a series of lantern-slides he showed how the botanical definition differed from their point of view. After which he dealt with the differences in appearance of the various seeds, and alluded to some types where the line of demarcation was very shadowy, as for example Rape and Swede-seed. The impurities of seeds was fairly well treated, and the lecturer gave several examples of adulteration that have been practised, of which, one extreme case was that of the inventive German who manufactured Clover-seed from stone, and foisted them on the market; also in grasses where cheaper seeds were mixed with those of a more expensive kind. He (the lecturer) expressed the hope that tests of seeds would become general, and that a guarantee of purity and correctness of name to be furnished to the buyer would shortly be in operation. The germination of seeds was referred to, and the lecturer quoted several experiments which were carried on to test the question of vitality, amongst which he quoted the work done by Sir W. T. Thiselton Dyer, who utilised Prof. Dewar's discovery of liquid air. He likewise showed the method of cleaning seeds as practised abroad, especially in the United States of America. After which he gave a practical display, and showed an incubator with seeds in process of development, and explained the method of working it; also arranged in one of the rooms a series of the Leitz dissecting microscope-stands, with slides illustrative of seeds of the Gramineæ, after which the lecture was brought to a close. *A. O'Neill.*

THE BULB GARDEN.

TIGRIDIA PAVONIA.

TIGRIDIAS are of easy culture, but require a rich and fairly porous soil. Like many allies of the Iridæ, they are most effective when planted in masses in the flower garden. The species under notice is

one of the best of the genus, bearing exquisite flowers of vivid colours in great profusion, and growing about 18 inches high. The gorgeous flowers are 5 inches across, and are borne well above the bright green Gladioli-like foliage. They are brilliant scarlet, spotted with crimson and purple. When the plants commence to flower, some blossoms will expand every morning, and each flower lasts but one day.

They should be planted in a sunny situation, and in soil that has been prepared by digging or trenching, and the application of a heavy dressing of farmyard manure. The month of April is a suitable time to plant them in the open. Some growers prefer to pot the bulbs in February, or early in March, and start them in a genial temperature under glass. The Tigridias are not sufficiently hardy to withstand our winters in midland and northern districts, and they must be lifted and stored as are Gladioli.

In warmer counties the bulbs may be allowed to remain in the ground if a covering of bracken or straw be afforded them. The only attention the plants need during their growth is to keep the soil clear of weeds, and afford water when necessary. Bulbs that will flower the same year as planted may be purchased at reasonable prices, but plants already in stock may be propagated by offsets or by seed. *H. T. M., Stoneleigh Gardens.*

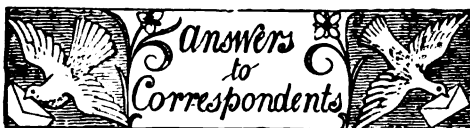
GALANTHUS ELWESII VAR. WHITTALI.

Chief among the newer Snowdrops is *Galanthus Whittali*. Although bearing a close resemblance to the well-known *G. Elwesii*, this variety has larger flowers, and is earlier; its foliage, also, is much broader and longer. As a proof of its early flowering, I may mention that although bulbs were planted in an exposed position, I gathered the first flowers from them on December 28, while those of *G. Elwesii* are only just (January 24) commencing to expand. The flowers are long and globular, and marked with three green spots at the base. Its tube, broad at the apex, is of a pale green tint, shading deeper towards the centre. The flower-stems generally exceed 12 inches in length. The broad leaves produced in pairs, are deep green in colour, and in length are about 12 inches. Its bulbs are among the largest of the genus. *E. S., Woking.*

SEEDS NOT TRUE TO NAME.—In reference to a paragraph from a correspondent, published in our last issue, p. 60, Messrs. HOWCROFT & WATKINS request us to print a letter, of which the following is an extract:—"Messrs. HOWCROFT & WATKINS resisted Mr. PERKINS' claim on two grounds, (1) that the seed supplied by them was true to name; (2) that they were protected by the usual 'non-guarantee clause' on the invoice. The action came on for trial before Mr. Justice CHANNELL on the 13th inst., when, after hearing the opening statement of counsel, his Lordship pointed out that it would take a considerable time to dispose of the first point, but that the second point was a short one, and he therefore proposed to decide it first, as if he should find it in favour of Messrs. HOWCROFT & WATKINS it would itself dispose of the whole case. The trial accordingly proceeded on this basis, and the judge having found in Messrs. HOWCROFT & WATKINS' favour upon the construction of the 'non-guarantee clause,' the other point was not gone into. If it had been, Messrs. HOWCROFT & WATKINS were and are prepared with cogent evidence to prove that the seed supplied as Clayworth Prize Celery was Clayworth Prize Celery and none other, having been tested in their own trial ground; and that they had sold a large quantity of it to a number of market growers, receiving from them great praise without a single complaint. In addition, Messrs. HOWCROFT & WATKINS were in a position to prove that Mr. PERKINS could not have been supplied with Celeriac by them."

COLD WATER v. WARM WATER FOR PLANTS.—Many gardeners hold that certain plants should

be afforded warm water, and they advance excellent reasons for the faith that is in them. But we learn from *American Gardening* that recent experiments at the Wisconsin Station have fully demonstrated the uselessness of warming water to be applied to plants through the soil. Many cuttings of Coleus, transplanted Tomato-plants, Beans, Radishes, and Lettuce, were used in the repeated experiments, the temperature of the water ranging from 32° to 100°. The plants receiving water at 32°—which is freezing-point—grew as well, and yielded as well, as those afforded water at 70° or 100°. "The soil about the roots of the plants so quickly regains its original temperature that no check to growth is likely to result." These tests were made in the greenhouse, and in the open ground ice-water was used in watering Beans and Radishes with results fully as good as when warm water was used. From the results of these and numerous other trials, the conclusion seems fully warranted that the growth of ordinary field and garden crops is not affected by the temperature of any water ordinarily available for irrigation purposes.



ADDRESS WANTED: *Dianthus, Leicestershire.* If you will send name and address, we will supply the information asked for.

BEANS: *Subscriber.* My opinion is that the roots having died and dried up, the stem-bases would naturally follow, and the plants wither. What caused the roots to die is not evident. It seems to have been a slow process, and might be due to treatment, root-insects, or root-fungi. The Botrytis which grew on dead parts might belong to a Sclerotinia disease, but there is no evidence to support this. The fact that other crops went wrong in the same house is suggestive. *W. G. S.*

CUCUMBER ROOTS. *D. D.* The roots are badly over-run with eel-worm, introduced in the pasture loam employed. There is no cure. Clear out the whole of the soil and the plants, and make a new start with soil from a new source. Loam should always be stacked for one and a half to two years, the stack being kept free of herbage.

DICTIONARY SUITABLE FOR SEED MERCHANT'S AND FLORIST'S SHOPMEN: *S. McG. The Dictionary of Gardening,* by G. Nicholson, and others published by Upcott Gill, 170, Strand, W.C.

DOUBLE-SPATHED RICHARDIA: *W. P.* These aberrations are of common occurrence, and are the result, usually, of extraordinary vigour in the plants.

FIGUS: *R. O.* The whitening of the margin of the leaf is not a disease, but the development of a sort of variegation. The variety is *Ficus elastica albo-variegata*.

FIG-TREE PRUNING: *Alba.* You will find pretty copious directions in *Gardeners' Chronicle* on p. 135, issue for March 4, 1899.

LIME ON TOMATO LAND: *R. F.* 1 lb. per square yard twice or thrice applied before and during growth.

MEALY-BUG IN VINERY: *Lamasine and Wanderling.* Remove the loose bark, especially that about the spurs, scrubbing the Vines carefully with hot-water and soft-soap, 4 ounces to 1 gallon of water. Then apply petroleum-emulsion or other suitable insecticide at the proper strength. Having done this, clean the interior thoroughly with hot soap-suds, and remove the soil 3 to 4 inches deep, doing this very carefully. Scrub the hot-water apparatus, more especially in the neighbourhood of the joints. If you hold with painting the Vines with a smothering-mixture of clay, cow-dung, and tar, the latter at the rate of half a pint to a bucketful of the paint, do this before there is the least movement of sap in the Vines. Give close attention to the Vines in the summer, using methylated spirits to kill solitary

bugs. The walls should be lime-washed, flowers-of-sulphur being incorporated in the wash. Do not permit pot-plants liable to attacks of mealy-bug to stand in the vinery. The bug will not be got rid of in one year, and the means indicated must be repeated for two or three years.

NAMES OF FRUITS: *Young Gardener.* We are sorry this answer has been delayed. 1, Harvey's Wiltshire Defiance; 2, Borsdörfer; 3, Norfolk Beeding. Next time please give your name and address, not necessarily for publication, but as a guarantee of good faith.—*W. T.* Very fine example of Beas Pool. The variety is a rather uncertain fruiter, but does occasionally bear heavy crops. We know several similar examples to yours.—*A. B.* The spotting in your Apples is certainly due to the fungus *Penicillium glaucum*, referred to in an answer to "T. H.," in our issue for January 20. The variety we take to be Ribston Pippin, but fresher specimens are needed to form a definite opinion upon. The Pear is also much past its best, and quite devoid of flavour; it is not the variety Broom-park.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*Buller II.* *Cinerraria platanifolia*.—*A. M.* Variety of *Rhododendron Nobleum*.—*Old Subscriber.* *Cattleya Percivaliana*.—*E.* *Dendrobium Fierardi*.—*T. S., Devon.* *Schomburgkia crispata*.—*A. C. G.* 1, *Begonia Dregei*; 2, *B. fuchsoides*.—*J. K.* The double form of *Spiraea Cantoniensis*.

PITCH PINE: *Young Gardener.* The botanical name is *Pinus rigida* (Miller), syn. *P. Fraseri* (Loddiges).

PTERIS TREMULA: *W. G.* The fronds sent show nothing beyond a few parasites resembling mites. No fungus is to blame. Try the effects of XL-All, which is fatal to most insects affecting house plants, and is not injurious to Ferns.

PYRUS MALUS FLORIBUNDA: *Scrutator.* Increase is usually obtained by grafting or budding on the wilding-stock at the usual seasons for these operations, as also by cuttings of two-year-old wood made of a length of 10 to 12 inches and inserted in the soil up to the two upper buds.

RANK GROWTH IN TOMATO PLANTS: *R. F.* Too much nitrogen is in the soil. Trench it two or three spits, burying the top spit at the bottom of the trenches. If manure be wanted during growth, employ potash twice or thrice, 2 ounces to 1 square yard.

SALT AND TOMATOS: *R. F.* Do not use it with lime.

SULPHATE OF AMMONIA AND CUCUMBERS: *Nemo.* The first is a trade expression, and merely means some form of nitrogen. We are unable to give you a definite opinion as to the quantity you may apply to your soil, not having an analysis of the latter. Do you know if it is poor in nitrogen? We might say that an application of 2 ounces per square yard would be of use, and at any rate it would be a safe quantity. Is not what you term clubbing the consequence of eel-worms in the soil? Please send specimens of roots for examination.

VINE-ROOTS DYING: *J. W. M.* The death of the roots indicates a compacted, exhausted soil, and, probably, inefficient drainage, or the total lack of it. It is not too late to transplant the roots in the outside border, making the latter anew. Nothing else will be of any use.

YEAR OF INTRODUCTION OF RICHARDIA SPECIES: *Ca. S. B.* *R. Elliottiana*, 1890; *R. Pentlandi*, 1892, both from South Africa.

COMMUNICATIONS RECEIVED.—*G. W.*—*W. M.*—*M. G.*—*H. S.*—*M. T. M.*—*D. T. F.*—*J. O. B.*—*E. W. H.*—*E. C.*—*G. M.*—*W. E. E.*—*W. P. W.*—*Wood & Son, Ltd.*—*W. M.*—*H. W. W.*—*A. D. H.*—*R. G.*—*W. S.*—*E. B.*—*W. G.*—*D. R. W.*—*J. S.*—*G. B. M.*—*E. S.*—*A. C.*—*Bartlett*—*G. M.*—*W. E. D.*—*J. M. A.* (banks)—*T. H.*—*E. M.*—*W. N.*—*W. F.*—*H. K.*—*J. W. Y.*—*J. R.*—*A. C.*—*A. L. J.*—*Sir G. W. S.*—*W. B. Gill.*

DIED.—HENRY EDWARD CRIPPA. On Sunday, January 23, Henry Edward, grandson of the late T. Crippa, of the Tunbridge Wells Nurseries, Kent, in the 32nd year of his age.

(For Markets and Weather, see p. xiv.)



THE Gardeners' Chronicle

No. 685.—SATURDAY, FEB. 10, 1900.

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HONEY-GUIDES.

"HONEY-GUIDES," or "Path-finders," are terms, I think, attributable to Darwin. They consist of coloured streaks or spots on one or more petals directly over the position of the gland, and are characteristic of many irregular flowers. In regular flowers, which are visited from all sides, there are usually none of this nature, but in some flowers the bases of the petals may be of a different hue or colour from that of their main or basal colour. If, for example, the flower be red or blue, the base may be yellow, as in Primula, Forget-me-Not, &c., while the blue Anagallis œerulea has a scarlet base, like that of A. arvensis, from which it is derived.

Usually, the "guide" is a darker colour than that of the ground, as in Sweet Williams, some annual Chrysanthemums, Rudbeckias, Dianthus Heddewigi, Scarlet Poppies, &c. In irregular flowers, the special markings are located on one or more, but not on all the petals. They may be on the posterior side, as in Rhododendron (see fig. 24) and Tropæolum, or, more usually, on the anterior, as in Pansies, Mimulus, Calceolarias, Digitalis, &c.

The question arises, how are these differences of colour to be accounted for in one and the same flower? Taking the following sequence as being that accepted theoretically as the line of their evolution, we have yellow as the primæval colour, as seen in the first change from green in the sexual organs of the Coniferae, the prototypes of flowering plants. The next to come is red of some shade, then purple, and finally

pure blue. White may occur anywhere in the series, as being the loss of all colour.

Now, the theory runs that the coloration of flowers is due to the stimulus to their nourishing process, induced by the irritations set up by the insects when searching for honey. The fact that the colouring is uniform and regularly distributed in regular flowers, which can be visited from all points of the compass, but is specially localised in irregular ones, and as far as the guiding marks are concerned, exactly tallying with the positions of the visitors, we are led to see a direct cause and effect; but how the plant responds and distributes the colours is unknown, and is likely to remain so. There is, however, no harm in speculating, provided one does not accept gratuitous assumptions as necessarily true.

With regard to regular flowers, all we can say is, that when the ground is white, or some other colour than yellow, and the base alone of the corolla is yellow, such is a retention of the ancestral colour, as in the Water Crowfoot,



FIG. 24.—RHODODENDRON FLOWER, SHOWING "HONEY-GUIDES" IN THE SPOTS UPON UPPER PETAL.

and probably descended from some terrestrial yellow-flowered Buttercup. If the base colour be red or blue, as in the Forget-me-not, then this has been stimulated to pass further on in the series. If the central "eye" be of a darker and richer tint than that of the petals, then we should say that it had received an extra stimulation over and above that of the general ground colour of the flower itself.

With irregular flowers some have yellow guides on darker base-colours; such would be regarded as retentions of the ancestral yellow. Others, like Foxglove and Stachys, have lost the original yellow, leaving only white on which spots occur. It is more common for the streaks and spots to be of some deeper tint, as in Primula, Calceolaria, Tropæolum, &c. In Pansies, besides the special guides, all the petals have retained a yellow base, indicating the original colour, as seen in Viola hirta.

Mr. Hervey, in his *Observations on the Colours of Flowers*,* in describing honey-guides, remarked that he had never seen or heard of any explanation regarding their origin, and offered an original

elucidation of the subject (p. 57). In my work, *The Origin of Floral Structures* (1888), I stated:—"The prevalence of brighter colours in conspicuous flowers which are regularly visited by insects is due to the stimulating effects which they have produced, thereby causing more nutritive fluids to pour into the attractive organs. . . . The guides are always exactly where the irritation would be set up, and I take them to be one result of a more localised flow of nutriment to the position in question."†

Mr. Hervey takes the Nasturtium (*Tropæolum*) as his illustration, "of a yellow colour, with a longitudinal reddish-brown stripe on each of the upper petals. . . . This richness of colour is occasioned by the irritating influence of the bees in traversing the same route to and from the nectary, thus stimulating the flower to send more of its peculiar pigment to this point."‡

If the reader will compare the passages I have italicised, I think, so far, it will be seen that thus far that Mr. Hervey's "original elucidation" is really an unconscious cerebral result of absorption and appropriation. However, he writes me word that he regards "two factors as required to make those guides; one, the influence of the bees;" the other, "a general change of colour, except the position which becomes the guide, which I variously designate as vestiges and relics of the original colour."

He certainly did not obtain this idea from me; for as the reader will have seen, I take a precisely opposite view as to the basal coloration whenever it advances from yellow onwards. The general colour does sometimes revert, we all know, as e.g., where *Adonis autumnalis* loses its deep brilliant scarlet, and becomes the yellow variety "citrina;" but as a general rule, not only is the ground colour due to insect stimulation, but the guides to some additional influence. The lowering of the base-colour Mr. Hervey does not explain, "suffice it to say that the fading of a colour to a lighter tint is one of the most common occurrences in colour-change." But this will not account for it in flowers in full vigour long before they fade.

In *Tropæolum*, therefore, he regards the dark streaks as the original colour from which the yellow of the petals has faded. But *Tropæolum* as first introduced from Peru in 1686 was yellow-orange, and under cultivation and nourishment, which affects the coloration without the aid of insects, it has become golden-yellow or ruby-red, &c.

Mr. Hervey's interpretation of the change in the ground colour by a sort of degeneration (except when it reassumes yellow), is just the reverse of mine. As far as we know, *Tropæolum majus* never was dark red in the wild state, and the dark parts have been superadded according to my theory. Mr. Hervey thus considers a ground change as necessary in connection with insect agency. I see no necessity at all, and I repeat that I take guides to be additions to whatever the ground colour may be. *Papaver Rhæas* has generally no dark spots at the bases of the petals, but they are not at all uncommon in Malta, the colour of the petal being the same, or, if anything, a trifle darker (not lighter) than usual. *George Henslow*.

ORCHID NOTES AND GLEANINGS.

DICTIONNAIRE ICONOGRAPHIQUE DES ORCHIDÉES.

THE following plants are figured in the January number:—1, *Cattleya Leopoldi* var. *purpurea*, Cogn.; 2, *C. Aclandii*, Ldl.; 3, *C. Atlanta splendens*, Hort.; 4, *C. Wendlandiana*, Hort.; 5, *C. Ella*, Hort.; 6, *C. Goossensiana*, Cogn.; 7, *Cypripedium A. de Lairese*, Hort.; 8, *C. Mahleræ* var. *Dr. Clinge Doorenbos*, Cogn.; 9, *Lisochilus Horsfallii*, Batem.; 10, *Oncidium Kramerianum*, Rehb. f.; 11, *O. reflexum*, Lodd.; 12, *Stanhopea Wardii*, Ldl.; 13, *Vanda Sanderiana*, Rehb. f.

* See *Gardeners' Chronicle*, December 30, 1899.

† *Op. cit.*, p. 178.

‡ *Op. cit.*, p. 58.

ONCIDIUM NUBIGENUM.

Under *Oncidium cucullatum* authorities have placed a very dissimilar set of plants, comprising *O. olivaceum*, *O. nubigenum*, and *O. Phalaenopsis*; and in defending *O. nubigenum* as a species, the late Prof. Reichenbach, in the *Gardeners' Chronicle*, 1867, p. 376, made the following interesting remarks: "When the lamented Dr. Lindley was a young lynx-eyed observer, he called this plant a good species. When he was older, and it had come into fashion to combine very heterogeneous types into 'one species' because 'there were too many species,' he believed it was his duty to cancel some of his own, and this *Oncidium* was degraded to the rank of a variety. Later he even named a variety *O. cucullatum nubigenum* for Mr. Linden. We believe this was a mistake, since the many flowers we have been favoured with by Mr. Linden, as well as Dr. Jameson's specimens, and a few sent by Messrs. Backhouse, never show any cucullate anther-bed, never have a produced nasiform keel on the lip, nor is there ever an isthmus to the lip. Messrs. Bateman and Linden are of our opinion as to the distinctness of the plant from *O. cucullatum*.

"It is a gay little plant, with spikes of flowers appearing as if they were diminutives of *Odontoglossum Phalaenopsis*."

An inflorescence of a very fine form of it is kindly sent by Frau Ida Brandt, Riesbach, Zurich (gr., Mr. Schlecht), and in it the entire absence of an isthmus to the lip, as indicated by the late Prof. Reichenbach, as well distinguishing it from others of its section is very evident.

In the colouring of the flowers the plants vary much, though through all run some similar features. The sepals and petals of the variety sent are creamy-white, densely freckled with pale rose colour. The broad labellum has a yellow callus, in front of which is a narrow band of purple, the blade of the lip being pale whitish-rose. Its affinity seems to be with *O. Phalaenopsis*, from which the characters specified by the late Professor Reichenbach clearly distinguishes it, and it has no relationship to the plant known in gardens as *O. olivaceum* and *O. cucullatum*. It is well illustrated as *Oncidium cucullatum* var. *nubigenum* in the *Botanical Magazine*, t. 5708, from a plant flowered by Wentworth Buller, Esq., and the habitat is given as the western side of the ridge of Asuay, Ecuador, altitude 11,000 feet. J. O'B.

SCOTLAND.

APPLES.

APPLES, like Pears, are this season of excellent quality; somewhat below the average in size, but so far have kept well. It is seldom indeed that the characteristic features of varieties have been so well developed, fruits so perfectly formed and finished, so highly coloured and so well flavoured. The supply of both dessert and culinary Apples required to meet current household demands has been drawn chiefly from a limited number of kinds, and those outside the number might just as well have been dispensed with, or their places filled with sorts that in all respects are always reliable.

Could we rely on certain varieties succeeding alike well on all soils it would greatly simplify practical pomology. But there is no garden-crop that exhibits a divergence in this respect so great as the Apple. It has been assumed that certain varieties succeed in given districts, which to some extent is true, but no one can depend on a variety which gives his neighbour satisfaction being equally satisfactory to himself. I have known gardens distant less than a mile from each other in which varieties showed the most perplexing differences both as regards health and cropping; strong loams suiting some kinds, and light soils others.

There is another point perhaps less regarded than it ought to be in estimating the value of varieties, which is, the relative size of fruit. There are not

a few sorts that crop heavily—sorts not infrequently of a local reputation, which produce fruits so small as to be not worth storing. I do not, of course, refer to trees which from overcropping are incapable of bringing fruit to its normal size, but to those crops which no amount of thinning will cause to swell beyond a small size. Want of quality is similarly not always taken account of: some cooking Apples, otherwise good, are insipid; others, again, are extremely acid, which is by no means a drawback with some palates. But these points cannot be overlooked if we wish to produce the maximum amount of good fruit from a given number of trees.

A generally prevalent feature in Apple selection that cannot be commended is the preponderance borne by early sorts over late ones. Commonly there is a superabundance of Apples early in the season, and a scarcity from January onwards. The reason for this is, no doubt, that free cropping early soft Apples are planted, and late ones neglected, when it ought to be just the other way. The production of late-keeping Apples is, moreover, affected injuriously in ways that do not so largely affect early kinds. One cause of shrinkage is the loss caused by high winds, more particularly in the case of the largest varieties. It is, no doubt, true, that fruits of Alfriston, and one or two other sorts, if not badly bruised, may be preserved till winter, but they cannot be depended on for a late supply. Trees of late varieties, again, cannot be cropped so heavily as early kinds without breaking down ultimately under the strain. A long and genial autumn works wonders in recuperating early sorts after the fruit has been gathered; but late varieties can be relieved in no other way than by cropping sufficiently lightly to permit the trees, while perfecting their crops, to provide fruit-buds at the same time for another season. In the same way with early varieties, crops may be secured from trees thickly branched, while with late kinds it is almost indispensable to dispose the branches so thinly as to make each one practically a separate cord; and there is also the fact never to be left out of consideration, that it is the late varieties that are most affected by unpropitious seasons. These are, I think, the chief reasons why the number of trees of late-keeping varieties should be always large, and proportionately greater than early sorts.

I have been examining the lists of Apples recorded in the report of the Apple Congress held fifteen years ago, and they are remarkable as still affording a safe guide to planters. From the first twenty of either dessert or culinary sorts, a fairly good selection may be made to meet all requirements, and in many cases the selection might be limited to the first twelve.

APPLES FOR DESSERT.

King of the Pippins then, as now, holds first place as the most generally useful dessert Apple [but not so choice as Cox's Orange Pippin. Ed.]. It is a variety that yields the best results on a warm light soil, and the finest fruits are produced on young shoots of a few years' growth, to secure a supply of which a regular system of growing-on, on young stems, to occupy the place of those that fail to bring forward fine fruits must be carried on. The fruit, as a further aid, must be severely thinned while yet small, and in October, when it begins to colour, the trees should be examined twice a week, and any that are ready gathered. The season during which the fruit is in its best condition extends from the end of November till the new year, after which time the flesh becomes mealy. Fruit beyond what is wanted for dessert is useful for cooking. Cox's Orange Pippin and Ribston Pippin produce the finest Apples when grown on a loamy soil. Both require to hang late when grown in bush form, and they are most useful when not eaten till after the new year. The last-named, like Blenheim Orange, is a first-rate culinary variety. Less valuable than these, and perhaps not very well known, but a very commendable sort nevertheless, is Duke of Devonshire,

the history of which is obscure. It is more generally cultivated in Scotland than it appears to be in England; the tree is dwarf and sturdy in growth, and the best fruit is produced on thinly-disposed spurs, the branches also being widely apart. Though a large crop of fruit is seldom, if ever, produced, it is at the same time necessary, in order to secure large and fine samples, to thin to a small crop; the fruit is ready to be gathered towards the end of October, and is in use during February. Sturmer Pippin is another certain cropper that requires severe thinning of the young fruits. The time to gather it is about the second week of November, and the fruit is used in spring; along with the following sort, it is one of the best Apples for Scotland.

Adam's Pearmain, which is not more remarkable for its other good qualities than for its fruitfulness, few Apples setting heavier crops with the same regularity. The tree is slender of growth, and the finest fruit is secured when the tree is permitted to grow with little pruning beyond the removal of worn-out branches, and those necessary to allow a free admission of light and air to the foliage. Through neglecting to thin, the fruit is usually small, and it generally hangs on the tree till the end of October. I know no more useful late varieties than these. Of the earlier kinds, Margaret, Mr. Gladstone, Irish Peach (best unpruned), and Worcester Pearmain, are in all respects reliable. James Greive, of the newer sorts, promises well.

APPLES FOR THE KITCHEN.

Culinary Apples, because of the large number of really first-rate sorts, are more difficult to select than dessert varieties. The earliest fit to cook is Early Julien, also known in Scotland as Tam Montgomery. Old trees bear more profusely than young ones, from which, however, the finest fruits are secured. While exceedingly acid during summer, if left long enough on the tree, the fruit becomes by September agreeable to the palate, and it possesses remarkably good-keeping qualities. Where, however, Keswick Codlin is well grown, the above variety is scarcely required, and this is of all early Apples the best suited to Scotland. The best fruit is invariably produced on young wood. Lord Suffield, since so many large soft-fleshed varieties have been planted, has largely decreased in favour. At the same time, taking into account its quality as the best of Apples when cooked, it is doubtful if it can be superseded. I find also that the similar constitutional defects are not absent from other kinds that have been cultivated a sufficiently long time to develop like traits. The tree should not be largely spur-pruned, but on the contrary a constant supply of young growths of a fruit-bearing age encouraged. An occasional application, say once in two years, of ferric sulphate ought also to be made, and its tendency to over-crop neutralised by thinning. From the Hawthordens, Stirling Castles, Ecklinville Seedlings, Queen's, Cellinis, and Warner's Kings, it depends on local circumstances which are the best. Personally, I prefer the last-named as at once the best in quality of fruit, and equally fruitful with any other sort of its season, which here extends to Christmas, after which the crispness of its flesh disappears. Tower of Glamis is a commendable late Codlin, but where Blenheim Orange succeeds there is no better sort available to bridge over the period between the soft Apples and the hard-fleshed late ones than is it. Bramley's Seedling during several years has proved a really reliable sort, not, however, superseding Dumelow's Seedling where the latter succeeds, which it does not do here, and a stock of Newton Wonder is being worked up in order to replace it should this variety prove satisfactory. Lane's Prince Albert suits us perfectly; and one of the best varieties that we have is Mère de Ménage. The tree always crops well, producing large fruits, remarkable for acidity. The best of all late Apples, taking into account size and good quality of fruit, evenness of crop, along with

keeping qualities of a high order, is Alfriston. The tree, though somewhat dwarf, grows to a fair size before it will crop heavily; it bears freely on spurs. Northern Greening is another late variety that always yields good returns; it is necessary to thin the fruit in a very free manner, and to thin spurs and buds in the same way annually. Another very late Apple which, by means of thinning, produces fruits considerably increased in size, is Dutch Mignonne. B.

CATTELEYA INTERMEDIA VAR. AQUINII.

THE accompanying illustration (fig. 25) represents a very remarkable Orchid, which was described by M. Barbosa Rodrigues, Director of the Botanic Garden at Rio de Janeiro, in 1893, as *Cattleya Aquinii* (*Journ. des Orch.*, iv., p. 144). The photograph, together with dried flowers and a coloured drawing, have been sent by Señor Graciano, A. de Azambuja, of Porto Alegre, S. Brazil, in the belief that it will "greatly interest many readers of the *Gardeners' Chronicle* as a notable case of



FIG. 25.—MONSTROUS FLOWER OF *CATTELEYA INTERMEDIA*, VAR. *AQUINII*.

fixed peloria. All specimens which exist of this *Cattleya* have been taken from the one and only plant which was discovered here (at Porto Alegre, in the province of Rio Grande do Sul), many years ago by a Portuguese gardener named Valladares. The flowers are identical from year to year. I believe that the *Cattleya* sent to the botanical garden at Rio by Señor F. de Aquino was taken from this parent plant." It has been figured by M. Rodrigues in *Plantas Cultivadas no Jardim Botânico do Rio de Janeiro*, p. 23, t. 4, fig. c. Although originally described as a distinct species, it has long been known as a peloriate state of *Cattleya intermedia*, in which the petals are lip-like in shape and colour (*Orch. Rev.*, i., p. 310; ii., p. 207). This peculiarity renders the variety very distinct, and the abnormal character cannot be considered a defect, as judged from the florist's standpoint, but rather as giving the flower an additional attractiveness. The character seems to be quite fixed, as in the case of *Uropedium*, and the double form of *Epidendrum vitellinum*. One other abnormal condition of this *Cattleya* is known, namely, *C. intermedia* var. *proliferans*, which was figured in these pages in 1887 (vol. ii., pp. 12, 13, fig. 3). An examination of one of the dried flowers mentioned

above shows the cause of the peculiarity, the column being abnormal. It is well known that the pair of teeth or wings seen on the column of so many *Ochids* are staminodial in their origin—occasionally they revert to their original character, coming as perfect anthers—and in this case they seem to have partly or wholly wandered from their usual position, and have become united with the petals, thus giving them their partially lip-like character. In fact, the side-lobes of the lip were long ago recognised by Robert Brown as staminodial in their origin, and, though this view has sometimes been questioned, there can be little doubt that it is the correct one, as Lindley and Darwin also held. That the petals are not transformed into perfect lips is what might have been expected, for each petal has only the addition of a single staminode. These abnormal flowers are often interesting for the light they throw on the structure of an *Orchid* flower, but the present one is also handsome, and we may hope to see it yet under cultivation in Europe. R. A. Rolfe.

THE ROSARY.

THE ROSE-HOUSE.

THE month of February brings plenty of work among the Roses, both indoors and outside, more especially the former. All Roses under glass, whether forced or merely housed in cold houses, are now active, and there should be no delay in getting the pruning finished. In houses having a temperature of 50° to 60°, flowers will soon be plentiful upon plants that have been moving steadily since the middle of the month of November. A slow start, and steady and gradually increasing temperature, are of very great importance in forcing Roses. It conforms more nearly with Nature, and we do well to take more note of this than is often done. To bring plants from a cold, and often freezing atmosphere, direct to a temperature of 55° or 65° only excites the sap already in branch and roots, and causes the premature growth of comparatively little value as compared to that which plants produce when gradually brought on. Roses immediately excited by heat are sure to receive more or less of a check at a very critical period, resulting in blind or flowerless growths. When Roses have made sturdy growths from 2 to 3 inches in length more heat may be applied, but our plants are never exposed to more than 70°, except for an hour or two upon a sunny day.

The Rose-house for early forcing should be a light one, and care taken to allow the foliage to become dry before nightfall. During the daytime, unless foggy, I believe in more moisture than the majority of growers give, especially if a little ammonia from liquid or other manures is present.

After several years' experience and from observations I have made in other gardens, I feel certain that a large number of failures with winter Roses is due to over ventilation. The least draught does harm to young growth, and the check given favours attack from mildew. The effects may not be observed at once, but the check has undoubtedly done harm.

Another frequent cause of disappointment comes from the use of too strong insecticides in destroying insects. It is more prudent to use them in mild form as soon as the insects are observed, than to let the latter increase and then to use insecticides in great strength. The insecticide known as XL All, if used at night, and the plants syringed in the morning with rain water at 75°, with 1 oz. of soft soap to the gallon dissolved in it, will kill those insects which may have been merely stupefied, and cleanse the foliage. I believe in fumigation when performed with care, for it reaches many insects which water applied with a syringe would not reach.

Whether the plants are in pots or borders, a light stirring of the surface is very beneficial to them. I have often been surprised to find moss

growing on the soil of pot-Roses. This stirring of the surface-soil and destruction of moss affords the gardener a better opportunity of ascertaining the needs of the soil in regard to moisture. Where many plants are grown, it is not always an easy matter to afford water to the whole of them correctly. Some may appear sufficiently moist, and be really dry in the centre; the soil of others may show slight signs of drought on the surface, but be moist enough lower in the pot.

Much has been written in these pages about the forcing of Roses, but not enough upon the importance of a proper selection of varieties. This is more especially the case when blooms are required in mid-winter. The following are all useful at that season, give a good selection of colours, the blooms open well, and the plants grow freely, and flower abundantly. Some are undoubtedly "thin," or few-petalled, and of comparatively little use during a hot season, but in the winter season they are very fine, and keep fresh for a long time, both on the plants and when cut. All of these mentioned have done well with me:—Beryl, Catherine Mermet, The Bride, Maman Cochet, General Jacqueminot, Gruss an Teplitz, François Dubriel, G. Nabonnand,

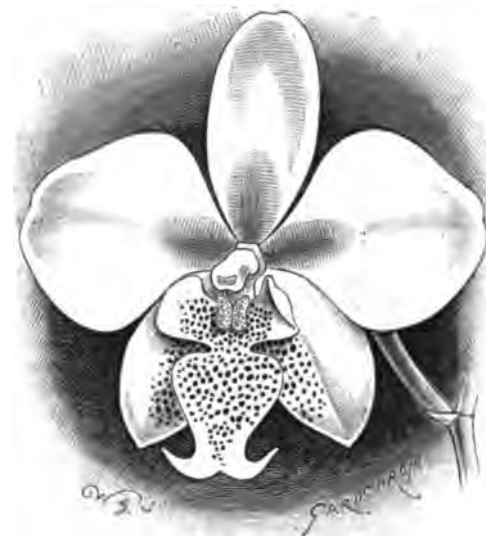


FIG. 26.—*PHALÆNOPSIS* × *SCHILLERIANO-STUARTIANA*.

Paul Nabonnand, Madame Faloot, Perle des Jardins, Niphetos, Sunrise, Kaiserin Augusta Victoria, Madame Badin, William Allen Richardson, Maréchal Niel, and Reine M. Henriette are eighteen that may be depended upon. A. Piper.

PHALÆNOPSIS × SCHILLERIANO-STUARTIANA.

Messrs. HUGH LOW & Co., of Bush Hill Park, Enfield, have constantly taken a leading part in the introduction and cultivation of species and varieties of *Phalænopsis*, and they have been very successful with them. For years the fine house full of *Phalænopsis* at the old establishment at Upper Clapton, was the admiration of the visitors to the nursery, especially in the flowering season. That same house, under the shadow of the offices, with other buildings in close proximity, and with the further disadvantages of London fogs, went far to prove that to those who understood their management, *Phalænopsis* were not the difficult plants to cultivate that many gardeners supposed. It is much to his credit that Mr. J. Anson, who has the management of Messrs. Low's Orchids, was always able to keep the collection in superb condition, though towards the latter part of the time at the old nurseries they gave him rather more trouble than

formerly. *Phalenopsidea* often resent a change, and the removal to their present quarters at Bush Hill Park might have produced bad results, though the contrary has been the case, for the plants thrive as well there as at the old nurseries.

The importations of Messrs. Hugh Low & Co. have produced some of the best of the species now favourites in gardens, such as *P. Aphrodite gloriosa*, *P. Stuartiana*, and a very fine type of *P. Schilleriana*, which produced the pure white variety *Vestalis*; some very beautiful *P. × leucorrhoda*, the result of natural cross-fertilisation between *P. Schilleriana*, *P. Aphrodite*, and other rare and beautiful varieties. *Phalenopsis × Schilleriana-Stuartiana* (fig. 26, p. 83), which was shown by Messrs. Hugh Low & Co. at the meeting of the Orchid Committee of the Royal Horticultural Society on January 23 last, and which was awarded a First-class Certificate, is one of the best hybrid *Phalenopsis*, its well-rounded flowers, which are white, with the inner portions of the segments delicately flushed with pale rose-pink, being very attractive. The form of the lip seems to be intermediate between the parents, the yellow callus dotted with dark red recalls *P. Stuartiana*, which species is also indicated in the lower sepal. The foliage is dark green, with the broad silver bands of *P. Schilleriana*.

For a considerable time past the large *Phalenopsis*-house at Messrs. Hugh Low & Co's., Bush Hill Park, has been a fine sight, with its numerous flower-spikes of the various species of *Moth Orchids*. At present also there is a fine show, consisting principally of *P. Schilleriana*, *P. Stuartiana*, and *P. Aphrodite*, and with them some good varieties of *P. × leucorrhoda*, including *P. × Casta*, and *P. × Cynthia*. Also in bloom are a very richly-coloured *P. × intermedia Brymeriana*, *P. denticulata*, and *P. amabilis*.

THE BULB GARDEN.

NOTES ON BULBOUS PLANTS.

Hymenocallis Hornemani.—This magnificent-flowering bulbous plant has just passed out of flower at this place (Isleworth). It produces strap-shaped leaves, 2 to 3 feet long; a scape 2 feet high, bearing an umbel of sixteen pure white flowers, each from 14 to 15 inches in length, and consisting of an erect tube 9 inches in length, and six linear, involute, twisted and drooping segments, which measure 6 inches in length. The staminal cup is wide and funnel-shaped, 1 inch in length, and surmounted by long, spreading stamens, which give a peculiar grace to the flower. The umbel has a refined appearance. The plant requires the temperature of an intermediate-house, and to be grown in a compost consisting of a loose and durable character. It must have plenty of water when in full growth, the amount being reduced when the plant is resting in accordance with the amount of leafage it carries. There are at least twenty species of *Hymenocallis*, all of which are worthy of being included in any collection of flowering-plants; *H. Hornemani* is one of the best of them. It is a native of Mexico.

Crinum erubescens var. *minus*.—This is a graceful species, producing a dozen leaves 3 feet in length, 4 inches in width; a purplish peduncle 2 feet high, bearing an umbel of six large white flowers. Each flower consists of a tube 6 inches in length, and a spreading perianth-limb, the segments of which measure 6 inches in length, half inch in width. The prominent filaments and style are tinted with purple, affording a good contrast with the white flowers. The plant is sub-aquatic, and should be cultivated in shallow pans, filled with water during the summer. It is a native of Jamaica, where it is found growing on the borders of marshes and lagoons about Palmetto Point on the N.E. coast. It is identical with *C. Roosenianum*, O'Brien, under which name the plant is best known in gardens. One of the chief objections to *Crinum* is, I gather, their colossal size. This may hold good of such plants as *Crinum Moorei*,

amabile, *asiaticum*, and the like; but by far the greater number of them are readily accommodated in an ordinary brick-pit, and are well worthy of the attention of the gardener. There is also considerable scope for the hybridist in the genus; and hybrids have proved valuable additions to our garden flora.

Lycoris squamigera and others.—*Lycoris squamigera* has again flowered remarkably well. The flowers much resemble those of *Amaryllis Belladonna*; but are lilac-rose in colour, and produced earlier in the season. It is a fine plant for growing at the base of a south wall, or on a very warm border. *L. sanguinea* has broken a flowerless record, extending over several years, by flowering this season. The colour of the flowers, as the name implies, is blood-red, or rather paler; the flowers measure 1½ inch in length, are trumpet-shaped, and appear in fives on a scape about 1 foot long. This species has produced seeds. As I believe these have not been described, I give a short description. They are perfectly round, measure three-eighths of an inch in diameter, and are exactly similar to those of *Amaryllis Belladonna*. Three seeds were found in each seed-vessel. *Lycoris aurea* and *L. radiata* are both very disappointing garden plants; they grow freely, but never flower. This is the more to be regretted, as *L. aurea* is a pretty plant for the greenhouse, the flower of which may be roughly described as being like those of a yellow *L. squamigera*. *Geo. B. Mallett, Isleworth.*

ALPINE GARDEN.

HARDY CYCLAMENS.

Cyclamen libanoticum.—This is a new species, and as its name implies, it is a native of Palestine, and was distributed as a new plant last year. Forming an opinion on the character of the plant in the nursery here, it is one of the finest of the family with which I am acquainted. It is quite hardy in this country, grows vigorously, flowering profusely during the months of January and February. The blossoms are about an inch in width, borne on stems about 6 inches in length, and possess a powerful and delicious perfume. In colour they are white, shading to deep pink, with a dark crimson spot at the base. Its leaves are developed before its flowers, and in shape they are orbicular, distinctly marked with a white zone; and in texture very firm. The corms are very large, and of irregular shape. It does not appear to be particular as to soil, but we prefer to use one that is light and rich, with leaf-mould added. A half-shady position is best for this species, although some of the plants are succeeding in full sunshine. [Some flowers and leaves sent with these notes, bore out our correspondent's statement. Ed.]

Cyclamen repandum.—This is a neat gem, and although reputed to be somewhat tender in places, this is not the general experience of cultivators. Its flowers are produced from March to April in abundance, and in colour they range from rosy-red to crimson, with a bright purple-coloured basal spot; they measure three-quarters of an inch in length. The leaves appear together with the flowers, and have a white zone on the upper surface, and the underside is tinged with deep purple. Its synonyms are *C. balearicum* and *C. ficarifolium*. A pure white form of this species is in cultivation, although very rare. *E. S., Woking.*

(To be continued.)

RAISING ALPINE PLANTS FROM SEED.

The "acclimatisation" of plants from high elevations has often been discussed in the columns of the *Gardeners' Chronicle*. While some growers prefer to work with transplanted specimens, others prefer to grow their plants from seed, as this plan is likely to yield better results. But there are, of course, certain plants that cannot be raised

from seed, and which, after germination, do not develop in the *Jardin Alpin d'Acclimatation* at Geneva.

In most instances the plan pursued is successful, as it is an imitation of the natural system of germination. Results may be long in coming, especially with species of slow growth, such as *Ericaceae*, *Empetrums*, and *Pyrolas*; but in most cases the work is easy, and possible to everyone, enabling them to obtain vigorous plants at the end of two or three years. As proof of this, I need only cite the fact that in this acclimatisation garden, nearly 4000 species of plants from the different mountains of the world are raised for sale, but only about a hundredth part are imported, the majority being raised from seed.

To ensure success, the following conditions should be observed: prepare a light sandy soil, just sufficiently nourishing to contain the necessary amount of food for the young plants. We use a mixture of one-third peat, one-third loam, and one-third of granitic or of calcareous sand, according to the requirements of the species. The most favourable seasons for the seed-sowing are late autumn, that is to say, the end of November or the beginning of December, or the spring.

The seeds are sown in pans, trays, or pots, with abundant drainage. Spring sowing is to be preferred in localities where snow is deficient. Care should be taken to cover the seed lightly, not to force it into the ground. The pots or pans should be kept in a cool, dry, and clean frame. If snow should fall, the seedling should be allowed to be buried under a thick layer of it. The snow may even be heaped up over the surface of the pots, and then be watered early on cold nights that it may become frozen over.

The influence of the snow upon the seedlings is considerable, as we have proved in our garden. Seeds of *Gentians* and *Primulas* were started at the same time and under identical conditions; except that while one series was left beneath the snow, the other plants were uncovered by it, and the former set all germinated at one time, and under the same conditions—the remainder which had been uncovered, came up irregularly and much later.

In districts where snow is deficient it is best not to sow seeds until March, and to let the rains fall upon it as much as possible. If the pots are well-drained this has no ill-effects.

If seed is sown later, or in a southerly and dry district, some sifted sphagnum should be added to the soil to give it a spongy and porous consistency, and a uniform degree of moisture. The moss takes the part played under natural conditions by the rocks: it absorbs the damp, then restores it little by little to the soil. From a hygrometric point of view, it is a regulating power.

The species first to germinate are those belonging to the *Cistus* family (*Helianthemum* and *Cistus*), *Crucifers* (*Draba*, *Erysimum*, *Arabis*, *Aethionema*, *Alyssum*, &c.); and Leguminous plants (*Oxytropis*, *Phaca*, *Astragalus*, *Cytisus*, *Anthyllis*, &c.). Then come Composites (*Edelweiss*, *Aster*, *Eriogonon*, *Hieracium*, &c.); Umbellifers (*Eringium*, *Meum*, *Astrantia*, &c.); *Crassulas* (*Sedums* and *Sempervivums*); *Saxifrages*, *Campanulas*, *Potentillas*, *Violets*, and so on. The species slowest to germinate are *Gentians* (especially if the seed is not very fresh), *Primulas* (*Primula*, *Androsace*), certain *Ranunculaceae* plants (*Pæonies*, *Ranunculus*, and *Aconites*); and *Fraxinellas*, which are sometimes two years before they come up, certain genera of *Berberis*, such as *Leontice* and *Jeffersonia*, certain *Lilies*, *Colchicum*, and *Iris*, *Corydalis*, and so on. Too often a seed is considered lost if it do not germinate after a few months, but it should never be thrown away until a year at least after sowing; or until two years after if it be one of the genera and species enumerated in the last list.

Germination is, after all, capricious. While *Anemone alpina* and *A. sulphurea* at the end of twelve or twenty days after the sowing of fresh seed

will come up, the seed will be several months or even a year before germination, if sown four or five months after it was gathered. These remarks apply also to Gentians and Primulas.

When the seed has germinated and the young plants are of a fair size, they are pricked out into rows or quincunx. Once able to endure complete isolation, the seedlings are set singly in small pans, from which they can be moved to the open ground or rookery, or be planted in larger and ornamental pots.

I have another hint to give intending and inexperienced seed-sowers. When the seeds are very fine, as are those of Saxifragas, Sedums, and Sem-pervivums, for instance, they should not be covered with earth, but with a thin layer of sand to pre-

all the flowers possessed narrow florets in much greater numbers than was the case in 1898, some having as many as fifty. It seems probable that before long Dahlia flowers will be produced with broad lower florets, and centres filled in with narrow thread-like ones, resembling in this respect the Anemone-flowered Chrysanthemums (see fig. 27). *W. E. Endicott, Canton, Mass., U.S.A., Jan. 18, 1900.*

VARIATIONS PRODUCED BY GRAFTING, AND THEIR INHERITANCE.

(Continued from p. 86.)

NUTRITION.—Some sixty or seventy pages are devoted to theorising with regard to nutrition. The ideal behaviour of plants under imaginary and

which is kept in a house while the roots are outside. In a similar way in experiments the stock was kept in one temperature and the scion in another, so that the precocious plant was retarded, and the more slowly-growing one advanced.

Double grafting, as it might be expected, must double many of the disadvantages of the simple process, but an explanation of cases where the former operation is of importance is given: Plant A will not succeed on plant C owing to something objectionable to the stock in the elaborated sap of the scion. By the use of an intermediary, B, which is not affected, the difficulty is got over.

An interesting criticism of the expression that the French Vine when grafted upon the American "resists" the attacks of the Phylloxera, must not be passed over. It appears that such grafting is only successful in the presence of the pest. The insects remove a portion of the sap, which the more vigorous roots of the American stock can take up; if no parasites were present, there would be too large a supply for the needs of the French scion, which would suffer in consequence. Such bad results could, however, be overcome by allowing the shoots to grow from the stock, thus giving rise to a mixed graft.

A point not previously touched upon is the variation which may occur upon grafting, in the plants' power of resistance to cold. The more water present in the tissues, or, speaking practically, the less the branches are ripened, the greater the risk of damage by frost, and, in consequence, a stock which floods a scion with water is likely to cause its death in winter time should be avoided.

M. Daniel applies his theory to the culture of Apples. For the grower in a large way he advocates the use of trees on their own roots. These live and bear nearly five times as long as grafted ones. The gain in time of fruiting, he has already shown, is made up for by loss in the total amount of fruit produced, and there is the money to be reckoned which is spent on manure, labour, and the cost of replacing trees. As a rule, in the west, where trees are planted to the utmost extent that space will allow, the soil becomes exhausted in every way, and there is no room left for a plantation to be made which will come on and replace the older one. The fruit farms become great orchards of grafted trees, exposed to every malady that follows grafting, especially of a defective nature, and doomed to rapid decay. Under these circumstances, how can one replace the trees when the soil is exhausted as well?

The practice should be to plant moderately, leaving a sufficient space between the trees, and preferably using trees on their own roots, only grafting such examples that produce inferior fruit. To the grower in a small way, who only thinks of quality, and uses or abuses grafting to get the best fruit as quickly as possible, this does not apply in the same degree, seeing that he can easily change his plants and his soil.

Double-grafting is strongly objected to, and it should, the author considers, be banished from the cultivation of the Apple. The process may double the profits of the nurseryman, as the trees quickly become marketable; and as a result of double-grafting they last for a much shorter time, and have consequently to be sooner replaced. The fruit-farmer's interests are the direct opposite of this last consideration, and he must use trees on their own stocks, or simply grafted. This is the only answer that M. Daniel can give to the question raised by the French Pomological Society in October, 1898, at the Congress of Mans.

GRAFT HYBRIDISATION.

In the following chapter, variations caused by the mutual action of scion and stock are considered. In certain grafts of *Alliaria officinalis* on the green Cabbage, the characteristic odour of the former plant is sensibly modified, and can only be recognised after the leaves have been rubbed for some time, and the stock partakes of it somewhat. When the Cabbage is put on to the Turnip, the

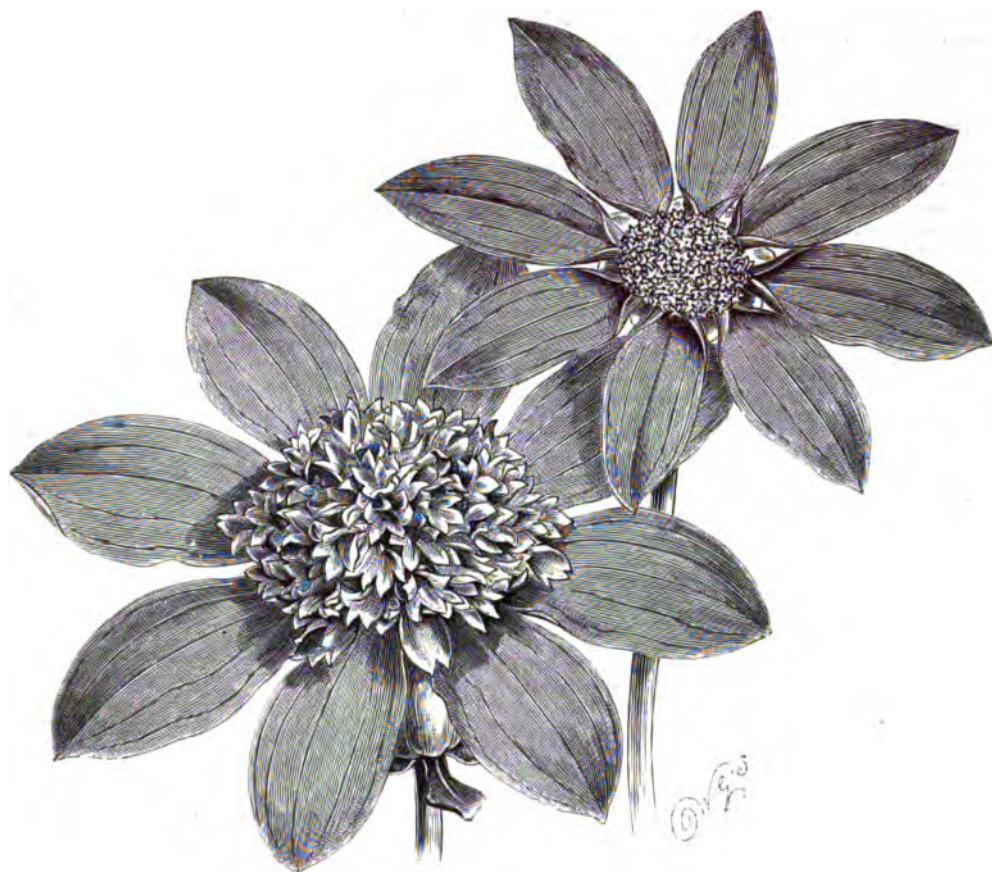


FIG. 27.—DAHLIA EXCELSA, SHOWING A CONDITION IN SOME RESPECTS RESEMBLING THAT DESCRIBED BY A CORRESPONDENT ON THIS PAGE.

vent them from being washed away when watered. It is even preferable to moisten them from below, letting the soil absorb the water. *H. Correvon, Geneva.*

FOREIGN CORRESPONDENCE.

THE BEGINNING OF A NEW RACE OF DAHLIAS.

At the present time, when the Dahlia is fast regaining popularity, it may be of interest to record what to me seems to be the beginning of a new race of this flower. In 1898 I found among my seedlings a plant some of whose flowers (single) had a long narrow floret lying on each of the usual broad ones, and never having observed anything of the kind before, I saved the plant as well as a few seeds, and planted the tuber and sowed the seeds last year. The latter failed to germinate, but the tuber sent up several fine strong growths, and

perfect conditions is dwelt upon, and what happens in actual cases the more easily worked out. It is stated as a principle that a wild plant in a given position never attains to its maximum size, because it never meets with those perfect conditions in its surroundings which alone would allow it to bring out its full capacity of absorption and assimilation. This explains why, when man takes to altering the circumstances of growth, as in cultivation, a whole plant, or even a part of a plant, may reach a larger size.

Most principles of this kind, says M. Daniel, are now-a-days familiar enough to the physiologist, but not to practical men; and he does not think that they have been applied in any previous case to the phenomena of grafting. We cannot, however, follow M. Daniel through all his theoretical arguments, and must content ourselves with mentioning a few points that crop up incidentally. One method alluded to by means of which success in grafting was secured, is taken from the ordinary culture in this country of Vines, the foliage of

latter becomes sweeter than usual, and loses its characteristic flavour. A Haricot-Bean, cultivated for its seeds, and the pods of which are disagreeable to the taste, grown on the roots of a variety, the fruits of which are eaten, produced some like these in taste, but of normal shape. These examples of chemical changes serve to prove, in M. Daniel's opinion, that the product of graft-hybrids is possible. The term, he says, is not very exact, but serves very well to show the origin of such plants.

Increased powers of resistance to cold, and to the attacks of parasites, is also claimed as being due to transmission of qualities from stock to scion.

Changes in the habit of growth next command attention. Among conical-headed Cabbages that had for stocks a variety that rejoiced in a round heart, were individuals that took this form and several intermediate shapes. *Helianthus laetifolius*, with a rhizome carrying a small, terminal bud at some 15 inches from the aerial stem, was grafted upon *H. tuberosus*, where the tubers normally remain close to the base of the stem. Though retaining their size, these bodies were produced at the ends of stalks some 10 inches in length. Somewhat the same result was obtained when an annual species of Sunflower was put on to the same stock.

Experiments on Potatoes led to the conclusion that the grafting of two adult tubers is an impossibility, and that Trail's work cited by Darwin, had been incorrectly described. Plenty of grafts were made with young shoots, but the change in the colour of the flesh when one with white tubers was provided with roots that should have produced blue ones, was not necessarily a result of the process. White and streaked tubers occurred though in smaller numbers among the control plants. M. Daniel is going to reverse the experiment to obtain more definite evidence.

When the woody *Helianthus laetifolius* was induced to unite with the Sunflower, the resulting plants with the latter as stock were flourishing after the control Sunflowers were dead. The stock had become very much more woody than usual, had lost its hairs and developed lenticels, so as to very much resemble the scion; this likeness was emphasised by a microscopical examination of the tissues.

Among trees, Mr. Daniel describes and gives photographs of the extraordinary branches sent out below the graft by the White-Thorn stock of a Medlar-tree at Bronvaux, near Metz. Some of these are furnished with thorns, their flowers are not solitary, but produce Medlars. There may even be on the shoots leaves of a character intermediate between the Medlar and White-thorn, while one starts with the typical foliage of the latter tree. This case is put down as a good instance of graft hybridisation, and M. Simon's opinion that the well-known *Cytisus Adami* is undoubtedly another example is given, and entirely endorsed by M. Daniel.

Perhaps the best results of this kind of hybridisation obtained during the experiments are met with in fruits. Striking figures of three forms from a single scion are given in the paper. These are from a shoot of the Egg-plant with long, violet fruits, grafted on a large, flat-fruited, red Tomato. One is the typical pyriform fruit to be expected; the second is egg-shaped, and small, such as would be produced by the white variety; and the third very much resembles the lobed and flattened fruit that would have been produced by the Tomato stock. Mention must also be made of the spines that appeared on the calyx of an Egg-plant normally without them, when grafted on a variety which possessed such structures.

With somewhat forcible arguments, the theory that graft hybrids are obscure hybrids of the sexual kind is dismissed. Solanaceous plants, for instance, have not been known to produce hybrids, and even if they did, the experiments show that grafting must favour sexual hybridisation; also a case is quoted from Darwin in which a Passion-flower on its own roots was not self fertile, but

became so when grafted on another species. Herbaceous plants are more plastic than woody ones, and show more instances of graft hybrids when studied; but it is pointed out that these would no doubt furnish more evidence of their occurrence if the stocks were not trimmed carefully so as to leave no shoots in practice.

(To be continued.)

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen.

Imported Cattleyas that are received early in the year need not be placed in a darkened position, as would be necessary later in the season, to protect them from strong light. Nor should they be scrubbed severely, but merely washed in moderately warm water to free them from dirt and insects. *C. Trianei*, *C. Moensis*, *C. Mendeli*, the typical *C. labiata*, and *C. Warneri* are usually put into pots or pans, and placed upon the stages, but if the stages are some distance from the roof-glass, the two last-named will thrive better in pans suspended from the roof. Where only a small number of newly imported *Cattleyas* have to be dealt with, the best method is that of fixing them in the receptacles chosen for them with crooks only, and using no surface material until roots have appeared. Every means the plants possess that can be used to fix them should be utilised, but if these are not sufficient, stakes will be necessary, as it is essential that the plants shall not be liable to be swayed about when making new roots. It being a most difficult operation to thrust stakes into a pot almost filled with crooks, the stakes should be fixed in before many crooks have been put in, or the plant placed in position, and as the lower crooks are large and need to be placed perpendicularly, the work will not be troublesome. Next introduce the plant, and tie with thin tar-twine a few of the old pseudo-bulbs to the stakes, taking care to so place the growing point of the rhizome that it will have room to extend for two or more seasons. Then fill in almost to the rim with smaller pieces of crock. Place the plants all together in the *Cattleya*-house, and, with the exception of damping the material on the stage, afford them no water, nor otherwise excite them for some time. When the season has advanced a little, spray the pots and crooks slightly on bright mornings, and this will induce gradual activity. When roots have appeared, remove some of the superfluous crooks, and fill the spaces thus made with good fibrous peat and living sphagnum-moss, in the proportion of two of the first to one of the latter. In no instance should the rhizome be covered, though the material should be packed well up to it at every point where roots are likely to appear. When a piece becomes divided during its preparation for potting, and a specimen is desired, so dispose the pieces that the growing points have a direction inwards; the rhizomes will thus have farther to travel before reaching the edge of the receptacle, and in growing form a homogeneous mass. A rather limited supply of water should be carefully applied when the final operation of potting has been done, and until root-action has become general.

Miltonia Oloveni is now thrusting out new roots from the base of the youngest pseudo-bulbs, and may be given any attention the plants require in the way of potting. Use pots for this species, and thoroughly well drain them with rather small crocks. The rooting medium should consist principally of good lumpy peat, introducing a little sphagnum-moss here and there on the surface. The temperature of a warm intermediate-house is best for this plant, and excepting during the most active period of growth, the water-supply should be limited, as in the case of other *Miltonias*.

Oncidium phymatocylum.—Though producing large bulbs and leathery leaves, this species does not require a large amount of rooting medium. New roots are now pushing, and repotting may be done where necessary. Planted in well-drained pots or pans, and afforded a moderate amount of peat and sphagnum-moss, it should be placed in a *Cattleya* or warm intermediate-house, and water applied sparingly until growth has partially developed; frequently from that time until growth is com-

pleted, and only occasionally afterwards. *O. divaricatum* is a good companion to the above when in bloom. It should be cultivated in shallow pans, and suspended in the warm-house. In other respects its treatment should be that described above.

THE FLOWER GARDEN.

By J. BENBOW, Gardener to the Earl of Ilchester, Abbotsbury Castle, Dorset.

Clematis, *Planting and Pruning*.—No flowering climber or trailer surpasses the *Clematis* for covering and decorating walls, fences, trellises, old tree stumps, and rockwork, or for forming festoons and beds on the turf. Where varieties of *C. Jackmanni* and *C. viticella* are used, support is afforded against the wind if a few plants of the common Honeysuckle are mixed therewith. The *Clematis* on rockeries may be fixed securely by placing pieces of porous rock upon the branches heavy enough to prevent the wind dislodging them, or from tilting, which would be injurious as bruising the stems. When employed as plants for filling beds in the flower-garden, Bamboo-canes or Hazel-rods form a good network, over which the plants may be trained. Canes, &c., should be bent over and fixed firmly in the ground, so as to form a convex surface.

Pruning.—Established plants of the above sections of *Clematis* may now be pruned. First thin out all the weakly stems, and cut back the more vigorous shoots if the space or wall needs more shoots to cover it. *Clematis patens* and the large-flowering *C. lanuginosa* varieties are the best suited for covering tree-stumps and high trellises. When growing vigorously, much nutriment is required, and one way of affording it is by mulchings of rotten farmyard or stable-manure, applied after all of the superfluous growth is removed. The *Clematis* delights in a deep, rich, porous soil, and weak liquid-manure applied when the plants are growing, or the aforesaid mulchings of manure. Slugs play havoc, especially at this period, when the growths at the base of the plants show; but if a ring of fresh unslaked lime, or wood-ashes, be placed about them as they appear, it is a good deterrent. Cotton-wool is also a good safeguard, but it is at times stolen by mice and birds for nest-making. In planting, well prepare the beds, and choose strong, well-rooted plants which have been growing in pots, placing them 3 feet apart. Beds of *C. Jackmani* var. *superba*, alone (or mixed with its white variety) make very effective beds. Newly-made beds may be planted with *Gladiolus*, so as to add brilliancy to the effect.

General Remarks.—Arrears of digging should now be brought up; bulbous plants will now be on the move, and root disturbance should be avoided. In digging flower-beds the soil should be made neat and level, but of not too fine a tilth. Avoid digging in the snow, or getting on the ground when it is wet.

FRUITS UNDER GLASS.

By J. ROBERTS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Melons.—The earliest seedlings that have been kept in a steady bottom heat with their heads near to the glass are now fit to be planted out in the bed. A hot-bed 3 feet deep of well mixed horse-dung and leaves is necessary at this season, in addition to any permanent means of obtaining bottom heat already in the house, as the atmospheric conditions induced by the hot-bed are favourable to the growth of the young plants. This bed should be made solid, and brought up to within 2 feet of the glass. Over this bed place sods with the grassy side downwards, and on these sods, at distances of about 16 inches, make slight mounds of well-decayed, light fibrous loam and bone-meal, just sufficient for the plants until they have started into growth. Tie each plant to a stake to hold it in position, and afford sufficient water at a temperature of 80° to settle the soil around the roots. Maintain a steady bottom heat of 80° to 85°, and a top heat of 70° to 75° by night, and 5° higher during the day. Afford the plants a slight shade for a few days after planting should the weather prove bright, and during frosty nights a mat thrown over the glass will tend to keep the house free from drip, and keep a more equable state of moisture. Sow seeds for succession-plants at intervals of two or three weeks.

Figs.—The earliest trees are in active growth, and the fruits are well advanced. Disbudding, stopping, and training, will now require daily attention. Do not retain more growths than can be fully exposed to sun and light, and train them into position at an early stage. Stopping should be done a little at a time, and according to the strength and growth of the shoot, and the backward or forward condition of the fruit in comparison with the growth. By too early stopping, the second crop of fruits may be brought too forward, and thus hinder the final swelling of the first crop. As a rule, strong shoots may be stopped at the eighth leaf, medium shoots at the fifth or sixth leaf, and weak ones left untouched. These latter will then have a long season for ripening, and will form the most fruitful wood next year. A steady bottom heat must be maintained under the pot-trees. If a good stock of young trees was propagated last year, a portion of them may now be subjected to warmth, to be grown on into half specimens for forcing another season. By starting them early, the plants will mature early in the autumn, and be in good condition for forcing next season if required. A few of these young plants may be grown in boxes, and trained in fan-shape. They will be found very useful for placing against any vacant ends of houses or front lights, and will bear an abundance of fruit. In planting them in boxes, place the plants at the edge, not in the centre of the box. This will bring the plant into its right position for training to back walls, wires, or other supports.

Cucumbers.—After a few weeks, the winter-fruited plants will not be worth retaining, and where provision has been made for a successional crop, the young plants will now be fit for planting. A steady bottom-heat of 75° to 80°, and a top-heat of 70° to 75° by night, and 80° by day, is essential. To attain these conditions at this season, a good bed of fermenting material will be required, and this should be well sweetened by turning and exposure, before being brought into the house. Build up the bed as near to the glass as convenient, so that the young plants will be near to the light. A layer 6 inches thick of light fibrous loam and leaf-mould will be a suitable compost in which to plant them. This depth will allow for surface-dressings later, when the plants commence fruiting. Encourage free growth by affording abundant atmospheric moisture, and husband the sun-heat by closing the house early after mid-day. The main stem will need to be stopped at 2 feet, and the side growths should be trained horizontally to fill up the base of the trellis.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Lettuce.—Cabbage varieties, such as Hardy Green Hammersmith, Schofield's, and Stanstead Park, that have been wintered in cold frames, may be encouraged to make growth. Afford them rather less air, and lightly break the surface of the soil with a fork between each plant. A moderate amount of water should be afforded if the soil is dry, and in a few days afterwards a sprinkling of soot over the soil to protect them from the slugs. Cos varieties, such as Bath Cos, and Hicks' Hardy White, should not be excited at present, and air may be freely admitted during the next few weeks. To supply early Lettuces in the open, such Cabbage varieties as Golden Queen, All-the-Year-Round, and Perfect Gem, are most useful, and seed may now be sown rather thickly in ordinary soil, and placed near to the glass in a warm structure. As the seedlings become larger, thinning out will be necessary, and this should be done carefully by means of a pointed stick. The little plants thus removed may be placed between rows of Potatoes in forcing-pits, and they will there produce tender leaves. Those plants left in boxes should be allowed to grow slowly, and when ready, may be gradually hardened off. Such plants will be found to heart more quickly after planting, than if transplanted twice.

Mint and Tarragon.—Continue to lift roots and place them in boxes or pots in gentle heat, and if handlights be placed over the permanent beds, growth will be accelerated there also.

Potatoes.—If the required number of sets were placed in trays as advised, sprouting will have begun, and they may be planted in 10-inch pots. The right manner of proceeding is to put a few large crocks at the bottom of each pot, then some rough loam over these; and fill to within 4 inches of

the top with equal parts of loam and leaf-mould, well mixed together. Two sets of even growth should be put into each pot, pressed firmly into the soil, and covered with soil. Place the pots in a light structure, so that growth may be sturdy; keep the temperature at 55°, and as soon as the haulm has grown above the pots, afford a top-dressing of the same kind of soil as the potting soil. Afford no water till the roots have filled the pots, and the young tubers formed, then apply enough to avert flagging. If a continuous supply of early Potatoes be required, the Potatoes may be grown in frames or pits heated with tree-leaves two-thirds, and stable-litter one-third. When the rank heat is dissipated, place a layer of soil, 12 to 15 inches thick, over the bed, and make moderately firm. In a few days, when the top-heat has fallen below 65°, plant the sets 1 foot apart in the row, and 18 inches from row to row. In cold weather the pits and frames should be covered with mats and litter, and it may be necessary in the case of frames to apply dung-linings, in order to keep up the heat, which ought not to fall below 60°. In the early stages a good deal of care is necessary in affording air. In fine weather the foliage may be syringed lightly.

Shallots.—These little bulbs are in constant demand in the kitchen, and in order to have them of good size, they should be planted early in the present month. Soil that has been deeply dug and is free from fresh manure is suitable for them, as aids to growth can be afforded later on. It is advisable before raking the ground to apply a sprinkling of fresh soot. When the ground is made even and firm, the "cloves" may be pressed into shallow drills at about 9 inches apart, leaving a distance of 15 inches between each row or drill, and merely covering them with soil. The ordinary variety is of middle-size, and of delicate flavour; and Carter's Mammoth Exhibition Shallot is larger, and suitable for exhibition. Shallots may be raised from seed, but they are not generally so satisfactory as those raised from bulbs. It is advisable to purchase some fresh bulbs at intervals of three or four years, as the Shallot is apt to deteriorate unless afforded a change of soil.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener, Stoke Edith Park, Hereford.

Red and White Currants.—Full-grown bushes will need to have all spray on the branches shortened back to three buds, and leading shoots should be tipped or cut back according to circumstances. When thinning branches from over-crowded bushes, remove the oldest and most awkwardly-placed ones, and to such a degree that in future the bushes will be freely open. Leave a few young shoots in old bushes to replace any that show signs of exhaustion, and "spud" out suckers from the base of all bushes. The aim in regard to young bushes should be to obtain a medium number of main branches well furnished with spurs. In determining which branches to retain, choose those that have a tendency to grow upwards, that the fruit will not be liable to be splashed in wet weather. Cut back rather severely one-year-planted trees. Cordons on walls, fences, or trellises, should have all side shoots spurred in, but merely top the leaders of trees which have still room for extension. The cordon is a capital method of growing these Currants, with the exception of the variety Cherry Red, and they may be thus grown on a northern aspect. Young trees having only one or two shoots are best to plant for this purpose.

Black Currants require to be thinned instead of spurred. Encourage the bushes to make plenty of vigorous shoots, and this can only be done by removing some of the old-bearing wood each year, and by feeding the plants well at the roots. The practice of cutting every other bush back severely each year has much to recommend it, but cannot always be adopted in these days. If the pruning of the bushes has been neglected, cut out as much of the oldest wood as can be spared. A good dressing of rotten manure to the roots will then have the effect of producing young wood of the right character.

Gooseberries.—Bushes from which the fruit is always gathered in a green state may be permitted to become rather close; but with regard to dessert varieties, upon which the berries have to hang some length of time, the conditions must be quite other-

wise. The bushes for each purpose are best grown in separate breaks, or in two divisions upon the same break. The Gooseberry is now much grown as cordons, and trained to wire-trellises, and for dessert varieties this is the best system. They may also be grown against walls, and the variety Warrington will succeed on a northern aspect in all of the warmer counties. Cordons should be pruned as recommended above for cordon Currants. In the case of bushes, thin out the crowns as much as needed, and remove all lower branches tending to grow in a downward direction. Then spur in the side growths, and leave the leading shoots one-half or two-thirds their length. Gooseberries, like Currants, should be extended in an upward direction as far as possible. If it is wished to increase the stock by cutting, select well-ripened shoots of medium length. Tie them into bundles and label them. It is quite time they were made, and when ready, plant them in trenches 2 feet apart in prepared ground.

PLANTS UNDER GLASS.

By T. EDWARDS, Plant Foreman, Royal Gardens, Frogmore.

Stove Plants.—*Codiaeums* or *Crotons* requiring more rooting space should be repotted, using a compost of light fibrous peat, with sand and broken charcoal. They require plenty of heat, light, and moisture. Following the disturbance of repotting, a slight shading may be necessary, but later, none whatever. Cuttings, or tops which have been "rung," will now be rooted and fit for potting, but this operation may be performed at any time; a good coloured branch makes a useful-sized plant in a very short time. Such varieties as *Reidi*, *Prince of Wales*, &c., need much root-room, and should make rapid growth early in the season, in order to develop the beautiful colours of the leaves. After potting plunge them into bottom-heat if possible, and syringe them frequently. Until the pots have been well filled with roots again, afford water only after very careful examination. Proceed with the potting and propagation of *Cordylines* (*Dra-cenae*), *Aralias*, &c. Palms, whilst in a young state will grow well in any light compost, but in the case of larger plants a more lasting material needs to be used, and if carefully potted, they will continue in good health for several years. For *Kentias*, *Cocos*, *Arecas*, *Latantias*, *Thrinax*, &c., use a compost of two parts fibrous loam and one part peat, with sufficient sand to keep the whole porous, and make it very firm with a potting-stick. An occasional top-dressing with an artificial manure may be given subsequently, and a free use should be made of the syringe. They are not much troubled with insect pests; the worst is white scale, and this can only be destroyed by sponging the plants carefully with soft-soap and paraffin, or with some other equally satisfactory insecticide. Palms should be sponged occasionally, even if free from insects; it will improve their appearance. A night temperature of 60° to 65°, or during the present cold weather a few degrees lower, will be sufficient. More or less shade is requisite to keep the foliage in good colour.

Bamboos are most useful if much indoor decoration has to be done, and their growths are also valuable for placing in large epergnes, or on staircases, &c., where there is little room for a pot. When used in a cut state the stems should be placed in water immediately, or the leaves soon shrivel. Division of root-stocks and repotting may now be done, using a rather strong loam; the temperature of the greenhouse will be sufficient.

Gloxinias.—Shake out and repot these in a compost of loam, leaf-mould, dried cow-dung, and sand.

Achimenes may be started in pans or boxes of light mould, or cocco-fibre dust and sand. When the stems have become 2 inches in length, pot them up, placing eight or ten corms in a 6-inch pot. *Achimenes* make beautiful objects when grown in wire baskets for the conservatory. If the plants are to be transferred to baskets, place some moss or fibrous loam on the bottom, then a ring of *Achimenes*, with the growing points towards the exterior of the basket, cover the roots with light sandy mould, add more moss, then another ring of plants, and so on, until the basket is full. Place the plants on the surface at 2 inches apart. They should be grown in an intermediate-house, and may be suspended in the conservatory as soon as the flower-buds are visible.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, FEB. 13.—Royal Horticultural Society's Committee Meetings, and General Annual Meeting.

THURSDAY, FEB. 15.—Linnean Society's Meeting.

SALES.

MONDAY, FEB. 12.—Fruit Trees, Roses, Hardy Perennials, &c., at Protheroe & Morris' Rooms.

WEDNESDAY, FEB. 14.—Japanese Lilies, Continental Plants, Tuberoses, Roses, &c., at Protheroe & Morris' Rooms.

FRIDAY, FEB. 16.—Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—59°.

ACTUAL TEMPERATURES:—

LONDON.—February 7 (6 P.M.): Max. 37°; Min. 27°.

PROVINCES.—February 7 (6 P.M.): Max. 40°, Land's End; Min. 27°, Peterhead.

West Indian. The second West Indian Agricultural Conference was opened on January 6 last, at Barbados, under the presidency of Dr. D. MORRIS, C.M.G., Imperial Commissioner of Agriculture for the West Indies. There were forty representatives present, including the heads of all the botanical, chemical, and educational departments, as well as representatives of the principal agricultural societies in the West Indies. The Governor of Barbados, Sir JAMES HAY, K.C.M.G.; Sir GEORGE PILE, Sir CONRAD REEVES, the members of the Legislature, and the principal planters were also present. In his address, Dr. MORRIS spoke hopefully of the operations of the past year, but admitted that the difficulty of permanently influencing West Indian agriculture in its present condition was enormous, and it required active and united action for some years to deal with it.

The prominence given to subjects tending to restore the sugar industry was cited, as fully carrying out the recommendations of the Royal Commission. Several new canes, notably, that known as "B. 147," had maintained their position, and were regarded by the planters as most valuable varieties; the amount of available sugar was at the rate of 3½ tons per acre.

Central factories for the improved manufacture of sugar in Barbados, Antigua, and St. Kitts, were again strongly advocated—in fact, without them it was impossible to place the sugar industry in these islands on a sure basis. Reduction in the cost of cultivation was recommended by the more general use of green manuring to replace some of the costly arti-

ficial manures now used; by extending the use of silos to supply fodder during periods of drought; by the more general planting of rotation and catch crops, thus saving the purchase of imported food stuffs and supplies; and by associating dairying with cane-growing, and raising pigs and small stock.

Subsidiary industries such as Cacao, &c., were recommended in suitable localities in British Guiana, St. Lucia, and Dominica; also Coffee, fruit, and India-rubber. Agricultural education has been actively organised, and it was confidently anticipated the foundation was laid for a larger measure of prosperity for all classes, white and black, than had been possible in any previous portion of the history of the West Indian colonies.

The Conference resumed on January 8, at 9 o'clock. After discussing the desirability of controlling and diminishing the spread of destructive pests in the West Indies, Educational subjects were considered. Great interest was created by papers read by Mr. DEIGHTON and the Rev. J. R. ROCCO (Barbados), Mr. W. FAWCETT and Canon SIMMS (Jamaica), and Mr. HART (Trinidad). An animated discussion followed, in which Colonel HICKS (Jamaica), Mr. W. BLAIR (British Guiana), Mr. J. C. COLLENS (Trinidad), and others took part. In the afternoon the Hon. F. WATTS contributed a valuable paper on "Food supplies of the Leeward Islands," and read a paper on behalf of Dr. NICHOLLS (Dominica) on "Botanic Stations in the West Indies." Several other papers were read, and the Conference, after a cordial vote of thanks to Dr. MORRIS, rose at 4.30. Afterwards, the President held a special meeting to confer with the representatives from British Guiana, and another with the Inspectors of Schools. A meeting of the Chemical Section sat, with Professor HARRISON as Chairman, to consider special questions referred to it. The Conference was unanimously regarded as the most successful yet held in the West Indies.

HYMENOCALLIS MORITZIANA, KUNTH.—This species of Hymenocallis, although introduced to European gardens a few years ago, is as yet but little known to gardeners. It is a compact, handsome, evergreen plant, with erect, Eucharis-shaped leaves, 2½ feet in length, with petioles equally as long as the blades. The flowers are white, fragrant, with very long tubes of a greenish tint, green filaments and styles. They are borne in an umbel of twenty or more, and appear early in the year, opening successively in two's, the display being kept up for a fortnight. Individually, they last about three days before collapsing. As in all species of Hymenocallis, the leaves and flowers vary in size on different plants, some of the forms of each species running so close to other species as to render their identification a matter of difficulty. The only species likely to be confounded with the one under notice is *H. eucharidifolia* (Baker), which is smaller in all its parts, and has a very stout neck composed of the sheathing bases of the alternately arranged leaves. The leaves of *H. Moritziana* are distichous, or nearly so. The treatment required by this plant is similar to that afforded *Eucharis*, but it must not be rested, as growth takes place at all seasons. In 1894, *H. Moritziana* was fairly common near the coast in Venezuela to the W. of La Guayra, at which place the plant illustrated (fig. 28, p. 89) was collected. It flowered in the collection formed and owned by A. WORSLEY, Esq., of Mandeville House, Isleworth.

VICTORIA MEDALLISTS OF HONOUR.—The death of Mr. JOHN FRASER causes a vacancy in the list of the Victoria Medallists of Honour.

MR. HARCOURT WEBB AND MR. FRANK WEBB, sons of Colonel WILLIAM G. WEBB, of Wordsley, Stourbridge, who, after holding Commission in the 1st South Staffordshire Volunteer Battalion, recently joined the Imperial Yeomanry, embarked for South Africa on Saturday, Jan. 27. Their many friends in the Stourbridge district abound in good wishes for them, and in the hope for their safe and early return.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Royal Horticultural Society will take place in the Drill Hall, James Street, Westminster, on Tuesday, February 13. The various committees will assemble at noon, as usual, and at 3 o'clock the annual general meeting of the Society will be held at the Society's Offices, 117, Victoria Street, Westminster, S.W. The Council of the Royal Horticultural Society at its last meeting unanimously requested the President, Sir TREVOR LAWRENCE, Bart., to allow himself to be appointed to the vacant Victoria Medal of Honour.

NATIONAL ROSE SOCIETY.—A meeting of the general purposes committee will be held at the Rooms of the Horticultural Club, Hotel Windsor, Victoria Street, Westminster, on Tuesday, the 13th inst., at 2 P.M. A meeting of the committee will be held at the same place and day at 3 P.M. H. HONYWOOD D'OMBRAIN, EDWARD MAWLEY, hon. secretaries. The matters for the consideration of the committee are:—Report of General Purposes Committee; Salisbury Schedule; Birmingham Schedule; Judges for Salisbury Show; Judges for Birmingham Show; Provincial Exhibitions in 1901; Girdlestone Memorial Fund, Crystal Palace Schedule, and other business.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held in the Lecture Hall of the Institution on Monday, February 12, 1900, when a paper will be read by Mr. H. T. SCOBLE (Professional Associate), entitled "The Bacteriological Treatment of Sewage." The chair will be taken at 8 o'clock. The annual dinner of the Institution will be held at the King's Hall, Holborn Restaurant, on Wednesday, February 21, 1900, at half-past six o'clock precisely.

LINNEAN SOCIETY.—On the occasion of the evening meeting to be held on Thursday, Feb. 15, 1900, at 8 P.M., the following papers will be read: I., Photography of British Plants, by Mr. J. C. SHENSTON; II., A New Land Planarian from the Pyrenees, by Dr. R. F. SCHARFF, F.Z.S.

THE NATIONAL CHRYSANTHEMUM SOCIETY.—Mr. R. DEAN was unanimously re-elected Secretary on Monday last. The attempt of the Executive Committee to prevent delegates from affiliated societies voting upon that Committee on questions other than those affecting such societies, was defeated. A report of the meeting will be found on p. 94.

EXHIBITION SCHEDULES TO HAND.—We have received the prize list and rules for the spring and autumn exhibitions to be held by the Royal Caledonian Horticultural Society in the Waverley Market, Edinburgh. The spring exhibition is to be held on April 4 and 5. The autumn show, which invariably attracts considerable attention, and is the best exhibition held in the North, was first arranged to be held on September 5 and 6, and is shown for these dates in the almanac published with our issue for January 6. We note, however, that the event has been postponed until September 12 and 13. Smaller exhibitions will be held on May 2 and July 11. The shows are open to exhibitors from any part of the country, whether members of the Society or not, and the prizes offered are of a very liberal character. The Secretary is Mr. P. MURRAY THOMSON, 5, York Place, Edinburgh.

THE WEATHER IN CORNWALL.—The total rainfall at this place during the past month

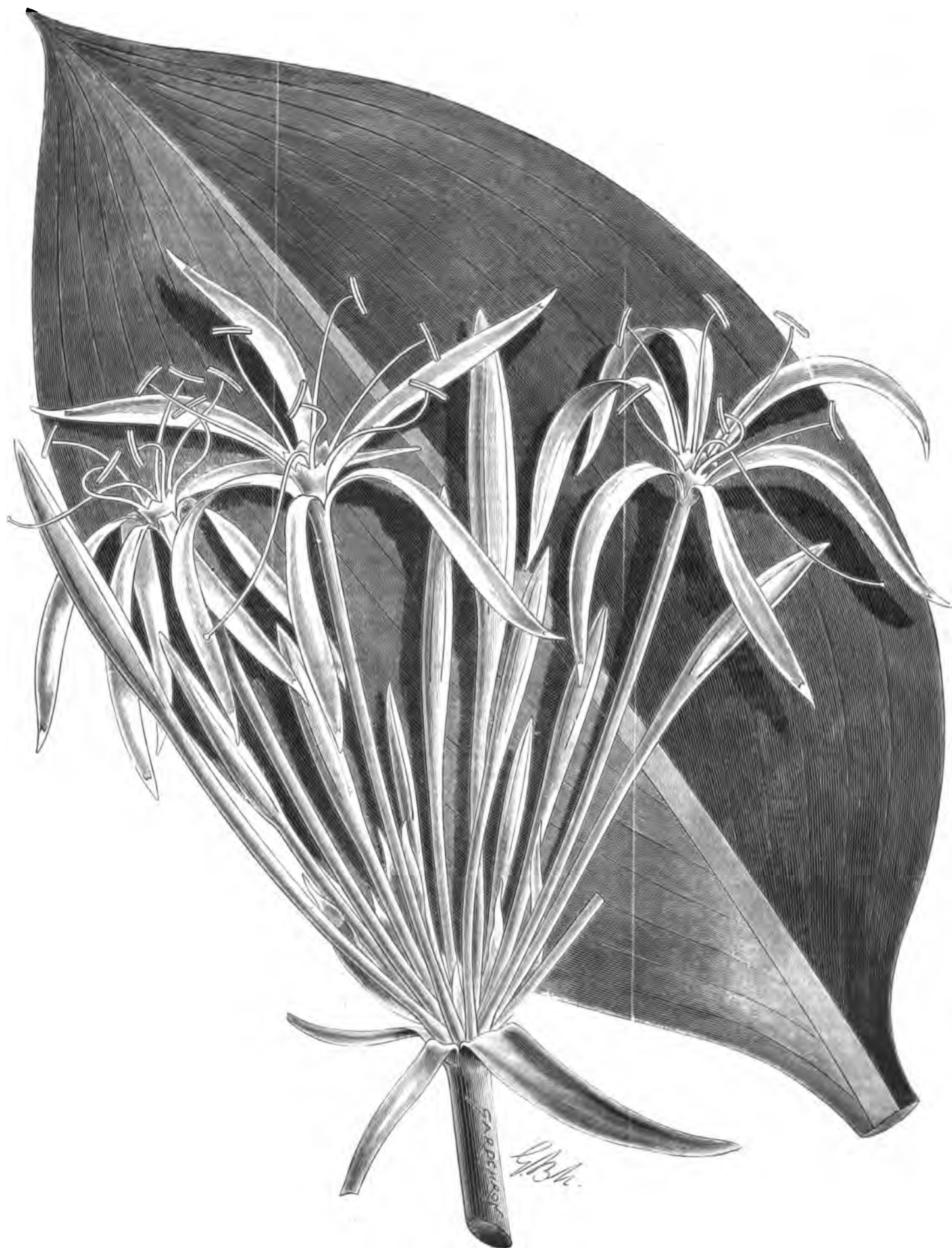


FIG. 23.—HYMENOCALLIS MORITZIANA: FLOWERS WHITE, WITH GREENISH TUBES, FILAMENTS, AND STYLES.
(SEE P. 88.)

amounted to 6.47 inches. The greatest fall in twenty-four hours was 1.24 inches, measured on Sunday, January 7, at 9 A.M. The temperature has ranged from 26° Fah., on January 5, to 53° on January 1, which latter amount was also registered on January 8, 21, and 25. A. C. B., Pencarrow, Bodmin.

TESTS OF PARIS-GREEN.—In a *Bulletin* lately sent out by the University of California, Agricultural Experiment Station, dealing with Paris-green for the Codling-moth, Messrs. C. WOODWORTH and GEO. COLBY publish the following summary of experiments with Paris-green and other arsenical spraying materials:—

"First.—That many Paris-greens nowadays contain large amounts of free water-soluble arsenious oxid, the manufacture and sale of which should be discontinued, but because these materials have proven injurious and unsatisfactory in horticultural work, and because they constitute a very obscure form of fraud upon the purchaser.

Second.—That the microscopic examination of a Paris-green affords sufficient evidence for rejecting it, if it contains as much as 6 per cent. of free arsenious oxid; and above this figure there is no question of the great value of this rapid and excellent test.

Third.—That adulteration in the sense of added foreign matter to Paris-green (e.g., barium carbonate, calcium carbonate and sulphate), is rarely practised in this country, at least by the manufacturers.

Fourth.—That the newer spraying materials, from the evidence at hand, with the exception of the very injurious barium compound and the paragne, will doubtless prove acceptable, and cheap substitutes for Paris-green, if the quantity of free arsenious oxid, especially in the green one, is better governed by proper methods of manufacture."

RICHMOND HORTICULTURAL SOCIETY.—At a meeting duly held on Thursday, February 1, 1900, THOMAS SKEWES-COX, Esq., M.P., Chairman, in the chair, the following resolution was proposed by him, seconded by Sir EDWARD HERTSLET, K.C.B., and unanimously adopted:—That the Richmond Horticultural Society hereby places on record its deep regret at the loss which has befallen horticulture by the death of His Highness the Duke of TECK, G.C.B., G.C.V.O., a Prince who for no less than twenty-six years past had been the President and valued friend and supporter of this Society; and begs to tender sincere and respectful sympathy to their Royal Highnesses the Duke and Duchess of YORK, and the other members of the late President's family, in their heavy bereavement.

LUPINS FOR GREEN-MANURING.—A *Bulletin*, by J. BURTT DAVY, from the University of California, has been issued with the above title. The author gives a bad character to all species of this plant, saying that:—"The Yellow Lupin is considered much more poisonous than the large White, and the Perennial Lupin less so than any other species. In using any species for forage, great care must be taken not to use much at a time, especially of the seeds, and not to use a Lupin ration without intermission. In the event of any cases of 'lupinose' appearing, the use of Lupin should be abandoned entirely. Lupin should never be used exclusively in a ration. For forage purposes the Lupins, therefore, do not appear to offer any advantages over other leguminous crops, except as winter growers, and they are certainly more or less dangerous, and not to be recommended indiscriminately."

CROPS AT THE CAPE.—We have received from the Under-Secretary for Agriculture at Cape Town the preliminary report for the year 1898-99 of the department relating to the output of Wheat, Barley, Oats (seed or grain), Oat-Hay, Rye, Mealies, Kaffir-Corn, Potatoes, red and white wine, and brandy. In the communication accompanying the report, the courteous Under-Secretary says: "Owing to the unsettled state of affairs the

publication has been much delayed, and even now (January 15), in some instances the figures are incomplete." When the fully-fledged report is issued we will hope to find in it the figures relating to orchards and vineyards, which are always of interest to readers here.

"BOTANICAL MAGAZINE."—The plants figured in the February number are:—

Eucalyptus ficifolia (F. v. Muell.), tab. 7697.—"Hardly anything can be more gorgeous than forests of this tree, seen at the end of January and beginning of February, when the flowers diffuse a rich red hue over the dark green foliage of the landscape." The plant grows well in the conservatory of Mrs. FITZROY FLETCHER, of Letham Grove, Arbroath, N.B., where it flowers every year in August. It has lanceolate acuminate leaves, and large terminal loose panicles of pink flowers. The illustration was taken from a plant that flowered at Kew. The native country is a very narrow area in the extreme south-west point of Australia.

Lomatia longifolia (R. Br.), tab. 7698.—An evergreen shrub with narrow whitish-green leaves, and loose terminal panicles of white Grevillea-like flowers. Native of South-eastern Australia. It was introduced as early as 1816.

Phlomis lunariifolia (Sibthorp), tab. 7699.—A very handsome shrubby Labiate, not unlike the old *P. lanata*, but with larger flowers. Flowered in June, 1899, at Kew, from seeds sent by E. WHITTALL, Esq., Smyrna.

Ariema flavum (Schott), tab. 7700.—A tuberous-rooted species with pedate leaves. The short tubular portion of the small spathe is pitted, the laminar portion rounded acuminate, green, with purple stripes. Western Himalayas. Kew.

Iris obtusifolia (Baker), tab. 7701.—A Persian species, with short, oblong, obtuse leaves and yellowish flowers. The "falls" are striped, and bearded at the base.

EUONYMUS JAPONICUS IN FRUIT.—From a correspondent signing himself "An Old Kewite," who described in our issue for January 20, pp. 45, 46, how very freely the *Euonymus* fruits in an exposed situation on the Cornish coast, we have since received a small branch of this shrub, which fully bears out his description. The branch is clothed abundantly with seeds covered with a bright red aril, just emerged from their dull purple capsules.

FRUIT PARCELS BY RAIL.—In a recent issue we gave figures furnished by the Great Eastern Railway Company respecting the carriage of small parcels of farm and garden produce over their line during the past and several preceding years. The following information, from the traffic-manager of the South-Eastern and London, Chatham & Dover Railway, possesses some extra importance:—"From May 1, when we entered into the arrangement in connection with the consignment of farm, &c., produce, until the end of December, we have carried 6924 packages in the special boxes; but regret to say the arrangement is not made use of to the extent I anticipated—in fact, parcels which would certainly not come under the head of 'farm-produce,' are found to be carried under the 'farm-produce' conditions." Nothing need be added here.

"THE FLORA OF CEYLON."—The fifth and last part of the handbook to the *Flora of Ceylon* has just been published by DULAU & Co. The work was commenced by our much regretted friend, Dr. TRIMEN, and has been continued since his death by Sir JOSEPH HOOKER, whose energy has not shrunk from the toilsome task. The enumeration and description of the grasses are entirely the work of Sir JOSEPH, as Dr. TRIMEN left no MSS. relating to this order. Analytical keys to the orders and genera are given. Mr. A. F. BROWN contributes an account of the "Forests and Waste Lands of Ceylon." Mr.

LEWIS has an appendix on the distribution of the rainfall in Ceylon; and Prof. BOULGER one on the history of Ceylon Botany. Full indexes to botanical and native names are given, as well as various maps. Sir JOSEPH HOOKER may be congratulated on this his latest contribution to botanical science.

AUSTRALIAN SALT-BUSHES (ATRIPLEX).—Australian Salt-bushes form the subject of a *Bulletin* from the University of California Agricultural Experiment Station, by Messrs. C. SHINN and M. E. JAFFA. According to the Summary of results, "This bulletin shows that the California Station has been experimenting with Salt-bushes for eighteen years; that the tests of some species have extended over the greater part of the State, and that *Atriplex semibaccata* is the most generally useful species of all that have been planted, although others are worthy of cultivation. It shows that *semibaccata* grows on strong alkali soil, furnishing a very large amount of satisfactory pasturage or fodder; that it also thrives on arid, non-alkaline uplands, even where wells have to be sunk 200 feet to water, and where the annual rainfall has been less than 5 inches. While the dwarf, bushy species, such as *vesicaria*, will also thrive on such uplands, they seem to furnish less pasturage than *semibaccata*. The Salt-bushes are of easy, rapid growth, and are hardy under California conditions. Reported from Australia as enduring 14° Fahr., without injury, some of the American tests would indicate that *semibaccata* will stand considerably more cold than this. The tolerance of brackish ground-water, and the extreme northern limits of growth are still undetermined."

A NEW RUBBER PLANT.—The *Semaine Horticole* of January 13 publishes an illustration and a figure of a new species of *Ficus*, signed F. Eetveldiana, L. Linden. It is a moderate-sized tree, growing in the Belgian Congo. The leaves are on long slender stalks, the blades cordate oblong. It will form a fine shade tree in the tropics, and grows rapidly under cultivation.

"HOME AND GARDEN."—Readers who recall Miss JEKYLL's *Wood and Garden*, with its freshness and valuable hints, will be glad to learn that a second volume from the pen of the same author has just been issued, and is published by LONGMANS. We shall have another opportunity of alluding to the book later on.

"THE ORCHID REVIEW."—"It has, however, been pointed out to the editor that the work would have a still wider influence if the price were reduced to 6d., under which circumstances many gardeners would subscribe who at present find the cost prohibitive. A reduction in price would necessitate a corresponding increase in the number of subscribers, and with the co-operation of our readers we believe that this alteration can be effected."

THE MIDLAND CARNATION AND PICOTEE SOCIETY.—The ninth annual report of this Society contains a full list of Awards made in 1899, and a list of subscribers and balance-sheet. Also a schedule of prizes offered, and rules to be observed at the forthcoming exhibition, together with lists of choice varieties of Carnations, and hints upon their cultivation. The exhibition in 1900, it is hoped, will be held in the Botanical Gardens, Edgbaston, Birmingham, on August 1 and 2. Unforeseen circumstances, however, may necessitate a change being made in these dates. The hon. secretary is Mr. HERBERT SMITH, 22, Tenby Street North, Birmingham.

THE NEW YORK BOTANICAL GARDEN.—The first number of the journal of this institution has been issued under the editorship of Mr. D. T. MACDOUGAL, Director of the Laboratories. An illustration is given of the museum building, which has a frontage of 308 feet, whilst the height to the top of the dome is 110 feet. A lecture-room large

enough to hold 700 persons is provided, as well as libraries, herbaria, laboratories and museums; the latter combining the features of those at Kew and at the Natural History Museum.

JUNCUS ZEBRINUS.—According to an article in the *Revue Horticole*, this banded Rush, originally introduced by Mr. W. Bull, is a form of *Sarpis lacustris*, as proved by the flowers which have been produced.

PUBLICATIONS RECEIVED.—From the University of California, Agricultural Experiment Stations: Bulletin 124, *Lupinus for Green-Manuring*; No. 125, *Australian Salt-Bushes*; and No. 126, *Paris Green for the Codlin Moth*.—*A Handbook to the Flora of Ceylon*, Part 5 (Dulau).—*The Botanical Magazine*, Tokyo.—*Bulletin of Miscellaneous Information, Royal Gardens, Kew*, Appendix iv., 1899.—*Catalogue of the Library Additions received during 1898*.—*Transactions of the English Arboricultural Society*, vol. iv., part ii. (Simpkin, Marshall & Co.).—*Journal of the New York Botanical Garden*, vol. i., No. 1.—*Die Pflanzen Welt Deutsche Südwest Afrika*, von Prof. Dr. Hans Schinz (Mémoires de l'Herbier Boissier).—*Canadian Horticulturist*.—*Icones Selectae Horti Shenensis*, tom. i., fasc. 2.—*Phanerogamæ et Pteridophytæ japonicæ iconibus illustratæ*, by Prof. T. Makino.—*Cryptogamæ japonicæ iconibus illustratæ*, Tokyo.—*The Potamogetons of the British Isles*, by Alfred Fryer (Lovell, Reeve & Co.).—*Jack and Jill's Journey*, by Phoebe Allen (Wells, Gardner, Darton & Co.).—*Home and Garden*, by Gertrude Jekyll (Longmans).

PLANT PORTRAITS.

ACACIA CALAMIFOLIA. Ic. Select. Hort. Thensis, t. 7.
CAUCINIA STRIGOSA (Boraginia). Icon. Select. Hort. Thensis, t. 10.
CISSUR BAUDINIANA. Icon. Select. Hort. Thensis, t. 9.
CRATÆUS OXYACANTHA VAR. INERMIS, a spineless form of the common Hawthorn. *Revue Horticole*, February 1.
LATHYRUS SPLENDENS, a Californian species, with crimson flowers. *Revue Horticole*, January 16.
POLYGONUM BALDACHUANUM. *Revue Horticole*, January 16.
POMADERIS RACEMOSA. Icon. Select. Hort. Thensis, t. 8.
TECOPHILEA CYANOCROCUS. *Revue Horticole*, February 1. A genus dedicated to Tecophila, the daughter of a botanist. This bulbous plant has lovely azure blue flowers, which are apparently less known in France than in this country.
THOMASIA SOLANACEA. Ic. Select. Hort. Thensis, t. 6.
WASHINGTONIA ROBUSTA. *Revue Horticole*, February 1, p. 68, &c.

ROYAL HORTICULTURAL SOCIETY.

THE Society has, in anticipation of the Annual Meeting, to be held on Tuesday next, published its Annual Report for the year 1899-1900, from which we take the following particulars:—

"The year 1899-1900 has been one of continued prosperity for the Society.

THE LINDLEY LIBRARY.

A large sum of money has been spent on the Lindley Library in recent years, and the Council have now had the books enclosed in glass-fronted cases for the double purpose of preservation and cleanliness. This has greatly improved the appearance of the library.

A catalogue has been published at the price of 2s. 6d., in the hope that many Fellows would purchase it, not only to inform themselves what books the library contains, but also because it forms in itself a reference-list to the bibliography of gardening. It would be gratifying if Fellow-would also take note of books still wanting to the library, with a view to presenting them.

During the past year valuable books have been presented by the Director of the Royal Gardens at Kew, Dr. Maxwell Masters, F.R.S., Miss M. J. King, the Rev. Professor Henslow, V.M.H., Mons. Correvon, Mons. Bois, and others, to all of whom the best thanks of the Society are due. A full list will be published on April 1 in the Society's Journal, vol. xxiii., part 3.

A corrected list of the awards made by the Society to plants, flowers, fruits, and vegetables to the end of 1899 is being prepared, and will be issued during the coming year.

Application is frequently made to the Society by Fellows desiring to have special advice respecting their gardens. The Council have therefore resolved to add a right to this to the privileges of Fellowship, and to send a competent Inspector to report and advise at the following charges, viz.: a fee of

£2 2s. for one day (or £3 3s. for two days, when necessary), together with all out-of-pocket expenses. No inspection may take up more than two days.

Under the head of ordinary expenditure at Chiswick, £1,810 has been spent on the general work and maintenance of the gardens. The receipts by sale of surplus produce amount to £330, making the net ordinary cost of the gardens £1,480.

At Westminster, twenty-one Fruit and Floral Meetings have been held in the Drill Hall, James Street, Victoria Street, besides the larger Shows in the Temple Gardens on May 31, June 1 and 2; and at the Crystal Palace on September 28, 29, and 30. An International Conference on Hybridisation was held at Chiswick and Westminster Town Hall on July 11 and 12. Lectures and demonstrations have been delivered at nineteen of the Meetings.

The number of Awards granted by the Council, on the recommendation of the various committees, amounted to 931 in all.

THE SCIENTIFIC COMMITTEE.

The Council desire to draw the attention of Fellows of the Society to the more extended use which the Scientific Committee might be to them if they availed themselves more freely of their privileges in submitting instances of diseases of, or injuries to plants, caused by insects or otherwise. The Scientific Committee is composed of gentlemen qualified to give the best advice on all such subjects, either in respect to the prevention or cure of disease. The committee is also glad to receive specimens of any subjects of horticultural or botanical interest.

THE TEMPLE SHOW.

The Society's great show held in May (by the continued kindness of the Treasurer and Benchers) in the Inner Temple Gardens, was as successful as ever, and it is a matter of satisfaction to the Council to find that this meeting is now universally acknowledged to be the leading horticultural exhibition of this country. The best thanks of the Society are due to all who kindly brought their plants for exhibition, or otherwise contributed to the success of this show.

THE HYBRIDISATION CONFERENCE.

The International Conference on Hybridisation held at Chiswick and at Westminster Town Hall, on July 11 and 12, was considered both by our home and also by our foreign guests to be an unqualified success, not only from the value of the papers read and communicated, but also from the pleasant opportunity it afforded for the meeting of horticulturists from all parts of the world. The report of the Conference has been unavoidably delayed. It will form a distinct and very valuable volume of the Society's Journal.

THE CRYSTAL PALACE FRUIT SHOW.

The exhibition of British-grown fruit held by the Society at the Crystal Palace on September 28, 29, and 30, was, considering the very unfavourable season, most satisfactory. Full particulars will be found in vol. xxiii., part 3, of the Journal, which will be issued in the course of a few weeks.

As an object-lesson in British fruit cultivation, this annual show stands unrivalled, and is of national importance. Those who have visited it from year to year cannot fail to have been impressed by the wonderful advance which has been made in the quality of the hardy fruits exhibited. And as the importance of fruit-growing in this country cannot well be over-estimated, the Council invite Fellows and their friends to support them in their efforts to maintain and improve this exhibition by visiting it, and by subscribing to its funds. For it cannot be too widely known that the continuance of the show is absolutely dependent on at least £100 being raised by subscription each year towards the prize fund. The show involves the Society in a very large expenditure without the possibility of any financial return. The Council have therefore established the rule that they will

not continue it unless sufficient interest in it is taken by Fellows and their friends to provide £100 towards the prize fund. And this will in the coming year 1900, be even more important than heretofore, as the directors of the Palace have signified to the Council that they feel compelled to decrease their contribution by £50. A glance at the list of subscribers will show how small has been the interest taken by the bulk of the Fellows. The Council would point out that this is not a local show with a few large prizes, but that a multitude of small prizes have been arranged in order to secure the best fruits in each section; special prizes have been allotted to market-growers; and counties have been grouped in such a way that growers should not have to compete with exhibitors from localities more favoured by climatic conditions. These points will be still further extended should sufficient financial support be forthcoming. Subscriptions should be sent at once to the Secretary, 117, Victoria Street, Westminster; and if the list prove satisfactory, the schedule will be issued in April, and the show held on September 27, 28, and 29, 1900. The list of subscribers for 1899 will be published in part 3, of vol. xxiii., of the Society's Journal.

DAFFODIL SHOW AT TRURO.

An invitation was received and accepted for sending a deputation to visit a show of Daffodils and other early spring flowers and produce, held at Truro on March 21 and 22, 1899. The Council desire to express their best thanks for the great courtesy and hospitality with which their deputation was received in Cornwall.

THE "JOURNAL."

The Journal of the Society has been continued so as to enable Fellows at a distance to enter more fully into, and reap the benefits of the study and work of those actively engaged at headquarters. Vol. xxii., part 4, and parts 1 and 2 of vol. xxiii., were issued during the year; vol. xxiii., part 3, will be ready on April 1; and vol. xxiv., on the Hybrid Conference, as quickly as possible.

THE EXAMINATIONS.

An examination in the principles and practice of horticulture was held on April 11, concurrently in different parts of the United Kingdom; 165 candidates presented themselves for examination.

It is proposed to hold a similar examination in 1900, on Wednesday, April 25. Candidates wishing to sit for the examination should make application during February to the Secretary, Royal Horticultural Society's office, 117, Victoria Street, Westminster, S.W.

The thanks of the Society are due to all the members of the Standing Committees—viz., the Scientific, the Fruit and Vegetable, the Floral, the Orchid, and the Narcissus Committees, for the kind and patient attention which they have severally given to their departments.

The thanks of the Society are also due to all those who, either at home or abroad, have so kindly presented plants or seeds to the gardens. A list of the donors has been prepared, and will be found in the Society's Journal, vol. xxiii., part 3, which will be issued on April 1.

The Council wish to express, in their own name and in that of the Fellows of the Society, their great indebtedness to all who have so kindly contributed, either by the exhibition of plants, fruits, flowers, or vegetables, or by the reading of papers, to the success of the fortnightly meetings in the Drill Hall. They are glad to find by the increased and increasing number of visitors that the Society's fortnightly meetings are becoming fully appreciated by the Fellows and public in general.

A very courteous proposal has been received from the Richmond Horticultural Society inviting the Council, with the Fruit, Floral and Orchid Committees, to sit at Richmond on the occasion of the local Society's show in the Old Deer Park, on Wednesday, June 29. This invitation has been cordially accepted, and the Committees will sit,

and plants, &c., will be brought before them for certificate, exactly as if they were sitting at Westminster.

THE CHARTER.

Ever since the great revival of the Society in 1887, questions have from time to time arisen as to the legality of certain of the bye-laws. It has been urged that this or that bye-law was *ultra vires* because it was apparently in conflict with the Charter. And when recourse was had to the two Charters under which the Society is incorporated, the later (and therefore presumably the ruling) Charter was found to be so encumbered with matters relating solely to the South Kensington lease from the Commissioners of the 1851 Exhibition (which matters ceased in 1887 to have any further connection with the Society), that it seemed well-nigh impossible to separate the small residuum of the Charter that was still applicable to the Society's altered position, from the mass of enactments which had become obsolete and irrelevant.

There appeared to be only two alternatives, either to abide by the existing bye-laws, or to petition Her Majesty to grant a new Charter. The expense involved in the latter course has hitherto been an obstacle, but at the beginning of the present year, 1899, the condition of the Society's finances appeared to the Council to be such as to warrant a petition being made to Her Majesty for a new Charter, and a considerable part of the year has been employed in drawing it up. The petition to Her Majesty and a draft of the new Charter were submitted to a general meeting of the Society held on June 21, 1899, and were unanimously adopted and ordered to be sealed with the Society's seal and presented to Her Majesty the Queen.

The Council have much pleasure in announcing that on the advice of the Privy Council, Her Majesty acquiesced in the petition, and on Nov. 14 signed the supplemental Charter, and ordered it to be sealed with the Great Seal of the Kingdom.

The Council have appointed a committee to draw up a draft of new bye-laws, which they hope to lay before a general meeting at no distant date.

THE CENTENARY.

The subject of the celebration of the approaching centenary of the Society in March, 1904, is naturally attracting considerable attention. After the consideration of various excellent projects (some of which, however, appeared impracticable on account of their expense), the Council have decided to recommend the acquisition of a new garden in the place of Chiswick as being, under all the circumstances, the best and most practical method of celebrating the centenary. A garden for experiment and trial is an absolute necessity for the Society, and Chiswick has recently become so surrounded with buildings, and the atmosphere so heavily charged with smoke, that not only has the difficulty of cultivation enormously increased, but it is feared that the results obtained from the trials are rapidly ceasing to be reliable. It is therefore proposed to issue an appeal to all the Fellows, and to raise a fund for the purchase of a more suitable site for a garden, in memory of the first hundred years of the Society's existence.

The Council fully recognise the advantage of the Society's possessing a hall of its own in which plants, flowers, and fruits can be seen by the Fellows under more favourable conditions, as regards light and space, than are possible in the building at present used for the meetings. They do not, however, as yet see their way to its attainment, but will be happy to consider any suggestions concerning it.

The numerical increase in the list of Fellows is no less than 580, showing a net increase in income of £748 2s. 6d. The accounts show a gross expenditure of £6069 7s. 1d.; £1810 10s. being expended on Chiswick. The total receipts amount to £7820 15s. 10d., so that a balance is carried forward to the General Revenue account of £1751 8s. 9d.

As the provisions of the new Charter require

that three members of the Council shall resign every year, the Council have decided that one vacancy having occurred already by the lamented death of Mr. Sydney Courtauld, the other two vacancies shall be created by the resignation of Sir John T. D. Llewelyn, Bart., M.P., and of R. McLachlan, Esq., F.R.S.

Under the new Charter retiring members of Council are eligible for re-election. The following gentlemen have been duly nominated to fill the vacancies, viz.:—F. du Cane Godman, Esq., F.R.S.; Sir John T. D. Llewelyn, Bart., M.P.; Arthur W. Sutton, Esq., V.M.H. The following have been nominated for re-election as officers, viz.:—Sir Trevor Lawrence, Bart., V.M.H., President; Philip Crowley, Esq., F.L.S., F.Z.S., Treasurer; Rev. W. Wilks, M.A., Secretary. No other nomination having been received, there is no occasion under the new Charter to issue a balloting sheet. By order of Council, *W. Wilks, Secretary.*



HOME CORRESPONDENCE.

BEAUTIFUL FRUIT TREES.—Many times in the *Gardeners' Chronicle* has the planting of hardy fruit trees as objects of beauty and decorative value been recommended, and not without sufficient reason has this advice been given. Many of the hardy fruiting *Prunus* and *Pyrus* in the spring time equal, if not surpass, in effect other trees that are cultivated for their flowering qualities only. Most persons know what a perfect picture of beauty a fruit garden usually presents in early spring, when the trees are in full flower; not even the collection of ornamental *Prunus* and *Pyrus* at Kew, when at its best, can show such a wealth of bloom. But in addition to their decorative value in the early part of the year, our fruit trees have the important advantage of being most useful in the autumn. In the first place we have the fruits; but in addition there is a remarkable variety of finely-tinted autumn foliage to be found amongst them, more particularly in the genus *Pyrus*. It is a remarkable fact, too, that those varieties which produce the finest and best flavoured fruits are usually the most finely tinted leaves in the autumn. The range of colour in autumn is from light yellow, through many shades of orange and red to deep crimson. When one has observed for some time the tints produced by certain varieties, it is quite possible to recognise many of them by the colour of their foliage alone; indeed, to obtain the best results from a decorative point of view, it is most necessary to be well acquainted with these before planting. One of the most distinct, and perhaps the deepest coloured of all, is *Pear Fondante d'Automne*; its leaves become very dark crimson, almost black. A greater contrast that would be produced by planting *Beurré Hardy* close by could scarcely be obtained, for the latter remains a rich yellow, usually faintly tinged with red. That deservedly favourite variety—*Thompson's*—has a most peculiar, yet withal, a striking tint, in many of the leaves black predominates, whilst in others it is yellow, or pale red, or sometimes all three are present together. *Doyenné Boussoch*, a useful early *Pear*, with leaves somewhat similar in shape to those of *Rhus Cotinus* (the smoke or wig plant) almost rivals the remarkable autumnal colouring of the latter. A charming effect is produced by the distinct oval leaves of *Pitmaston Duchess*, in which yellow, both light and deep, and crimson, are finely blended together. *Pasé Colmar* is another *Pear*, the foliage of which changes to a very dark tint; *Napoleon*, again, from yellow, gradually develops into a fine deep crimson. In *Gregoire Bourdillon* the yellow veins become prominent on a background of red and yellow, giving a beautiful streaked appearance to the leaves. A deep brick red well describes the autumn tint of the foliage of *Marie Benoist*, while *Williams' Bon Chrétien* has

a very dark appearance, somewhat similar to *Fondante d'Automne*. Other varieties with characteristic foliage are *Souvenir du Congrès*, *Duchesse d'Angoulême*, *Beurré d'Amanlis*, *Marie Louise*, &c. It will be observed that most of the above-mentioned *Pears* are well known as varieties producing some of our best dessert fruits; thus by planting them in our shrubberies and garden borders we should not only be able to derive pleasure from their beautiful flowers and leaves in spring and autumn, but also to enjoy their produce, equally with those from the fruit garden. *H. H. T.*

SPRAYING-SYRINGES.—I do not know the *Ver-moré* syringe, but I do know the *Abol* syringe, sold by Messrs. White & Co., of Paddockwood, having one for use, and of that I can write in warm praise. It is small, neat, handled even easily by women, works freely, and because fitted with a patent arrangement has no back discharge, which is so great a nuisance in many syringes. This syringe is filled with both straight and curved nozzles, and it is the latter especially which makes the instrument so useful; and through its aid plants of all descriptions can be sprayed from the ground upwards on the undersides of the leaves, whilst the sharper the syringe is driven the more vaporous is the liquid emitted. Literally the moisture from it falls on plants like dew. Though sent out for special use with the popular *Abol* insecticide, it can be used equally with any other liquid. With all these syringes it is well to give them a turn with clear water occasionally to help keep them clean. *A. D.*

PROTECTING PEACH-TREES WHEN IN BLOOM.—While touching upon an old subject, the reading of which may prove of use to younger members of the craft, it cannot but afford interest to older practitioners, protecting the bloom of the *Peach* from the effects of spring frosts. I will briefly describe the method practised here, with the best results: during the winter months, or not later than the first week in January, all the nails and shreds holding the young wood of the previous season's growth close to the wall are withdrawn, only those holding the main branches in position are left. The object in so doing is to allow the flower-producing wood to stand out from the wall, thereby retarding the flowering period by several weeks, and mitigating the exciting influence of the sun shining directly upon the wall, as it usually does in the early days of the year. The trees naturally profit by the rest they have had, and quickly respond to a little warmth, only to receive a check from frost. The pruning is taken in hand at the present time, leaving only the task of nailing or tying when the flowers are expanding freely. The work is completed quickly, and as a finish, a single fish-net is fastened to the top of the wall, hanging down to the ground—not that I think it affords much protection, but it gives one the impression that the bloom is safe and the trees protected, and all we can do has been done. This method has been adopted here, after trying various others without success, and now I favour it more for the reason that last year complaints were heard on every hand of light crops or none at all. Severe thinning of the fruits had to be done last season to prevent injury to the trees. The *Peach*-wall has a south-east aspect, and the varieties grown are *Alexander*, *Early Louise*, and *Waterloo*. *W. H. Sharpe, Highwood Gardens, Rochampton.*

APPLE HOARY MORNING.—Among the showy section of dessert or cooking Apples this certainly has a claim to notice. Although having an ample supply of such sterling dessert varieties as *Cox's*, *King's*, *Ribstone*, *Adams' Pearmain*, and others, *Hoary Morning* is inquired for more frequently than any by visitors, because of its fine colour and bloom. The bloom which covers the surface of the fruit is as dense almost as that of the *Grape*, and as easily destroyed by handling. Full-sized fruits are too large for the dessert-table, but the medium-sized samples afford a touch of colour unpossessed by any other winter fruit. Quality, as previously intimated, is not present, sufficient to call forth favourable comment, but this is overshadowed by external beauty. The flesh, as with other deeply-coloured Apples, is suffused by a very pretty pinkish shade. Young trees on the *Paradise*-stock give the best fruits. *W. S.* [Flavour is the essential quality of all table-fruits. *Ed.*]

THE QUINCE IN SUSSEX.—In the *Gardeners' Chronicle* for January 27, 1900, p. 50, it is stated

that the Quince is largely grown in Sussex, and that "the fruit nowhere else attains so large a size, or so rich a flavour and hue;" but it does not appear that any special industry is carried on in Sussex with the Quince. It is capable of being made into a very choice kind of confectionery. In Italy they make what they call *cognata*, a sort of Quince-cheese. It has the same relation to Quince-jelly that Guava-cheese holds to Guava-jelly. The *cognata* is a softish solid, well sugared, and made into slabs of about 18 inches long, 12 inches broad, and 2 inches thick. Purchasers have a slice cut, and pay for it by weight. I know of no fruit conserve of a choicer flavour than this *cognata*. Under the teeth, it feels like crystallised Apricots, but with a wholly different flavour. Why should not an industry be set up in Sussex, where the Quince is said to grow so well, for producing this delightful *cognata*? The best way to learn how to make it is for some one to go to Florence and learn how it is made by seeing it made; or better to bring over a maker of *cognata* from Italy, and start the concern in Sussex. It is a conserve that everybody would purchase, and everybody would enjoy. *E. Bonavia, M.D., January 31, 1900.*

COLD WATER V. WARM WATER FOR PLANTS.—

On p. 80 of your last issue I read with interest the extract from *American Gardening* on this subject. A perusal of the extract should cause gentlemen's gardeners to discontinue the old practice of employing warm water for fruit-tree borders under glass. There are scores of head gardeners who still regard the use of warm water as being essential, and the extra labour that this entails acts injuriously on other departments of a garden. Mr. McIndoe, gardener at Hutton Hall, Guisborough, grows the finest of fruits, and gets them in very early; and he never uses warm water at any stage of growth. *H. Harris, Coedriglan Park Gardens, Cardiff.*

SCHEDULES.—Having been a member of committees of horticultural societies in Bucks, Kent, and Lincolnshire, and being a young exhibitor, I am particularly interested in your article on "Schedules" on p. 24 I have found that in neither society has any definite rule been followed in the wording of classes. I do not think that many will dispute your assertion that there is a general laxity and unintentional carelessness in this. For instance, this is from a schedule of a certain society:—"Class 40, collection of fruit, six kinds, Pines excluded." The winning exhibit last year included, 1, Black Grapes; 2, White Grapes; 3, Peaches; 4, Nectarines; 5, Figs; and I think the sixth was a Melon. If Black and White Grapes are allowed to count as one each, might not scarlet and green-fleshed Melons be exhibited on the same principle? Could there have been a successful protest according to the wording of the schedule? [The directions might read thus: Class 40, collection of fruit, six varieties. If it is intended on a future occasion to admit Black and White Grapes, the fact should be stated, and so with red or green-fleshed Melons. If no restriction is made in the schedule, black and white Grapes, scarlet and green-fleshed Melons, Red and White Currants might be shown, but the judges would naturally, other things being equal, give the prize to the exhibit that showed the greatest amount of diversity. *ED.*] What do you suggest should be the wording, when it is intended to allow any nine of the following fruits to be exhibited in a class: Grapes, Peaches, Nectarines, Figs, Apricots, Melons, Plums, Cherries, Apples, Raspberries, Gooseberries, Red Currants, White Currants? [The schedule might read, "Any nine of the following fruits: Grapes (black or white, or black and white, according to the desire of the committee, each variety counting as one unless otherwise specified), Peaches, Nectarines, Figs, Apricots, Melons, Plums, Cherries, Apples, Raspberries, Gooseberries, Red Currants, White Currants. Any of these may be selected to form a collection of nine varieties." *ED.*] Also, what should be the wording if two varieties of any of the above fruits are to be allowed? [If two varieties of Grapes, or Peaches, or what not are to be allowed, it is simply necessary to state the fact in the schedule, so that there may be no mistake. *ED.*] Also any nine of the following vegetables: Cauliflower, Cabbage, Brussels Sprouts, Savoy, Onions, Beetroot, Celery, Potatoes, Parsnips, Turnips, Carrots, Leeks, Artichokes, Marrows? [Collection of nine vegetables, selection to be made from the following varieties and species: Cauliflower, Cabbage, Brussels Sprouts, Savoy, Onions, Beet,

Celery, Potatoes, Parsnips, Turnips, Carrots, Leeks, Artichokes, Vegetable-Marrows; or, if it be desired to include one variety of the Cabbage genus only, then say selection to be made from the following varieties, but only one variety of the Cabbage genus to be shown. *ED.*] Also bunches of any twelve of the following flowers: Roses, Carnations, Sweet Peas, Phlox, Mignonette, Stocks, Asters, Dahlias, Lilies, Stephanotis, Lapagerias, Begonias, Montbretias, Helianthus, Allamanda, Eucharis. [Twelve flowers, selection to be made from the following: Roses, Carnations, Sweet Peas, Phlox, Mignonette, Stocks, Asters, Dahlias, Lilies, Stephanotis, Lapagerias, Begonias, Montbretia, Helianthus, Eucharis. Only one variety of each species to be shown (or more if preferred, but in that case specify the number that may be shown). *ED.*] The schedule asks for a collection of out flowers in twelve varieties. Is this sufficient information? [The expression "Cut flowers, twelve varieties," without any further specification, might lead to great trouble and difference of opinion, as one man might show twelve Sweet Peas, another twelve Carnations, and so on. The committee probably intended to ask for twelve species, one variety of each species. *ED.*] *T. H., Lincoln.*

THE CRYSTAL PALACE FRUIT SHOW.—One of the unfortunate results of the enormous cost of land in London is, that with the exception of the somewhat far-distant Crystal Palace, there seems to be no building in the metropolis which could fitly shelter the Royal Horticultural Society's fruit show. That the show, one of the finest displays of hardy fruit to be seen in Europe, is relatively so poorly attended at the Palace is a matter to be greatly deplored, but evidently it is chiefly due to the distance of the Palace from London, and to the time and trouble, as well as cost, expended in getting there and back. Doubtless, it is due to this lack of attendance on the part of the public which has led the Palace directors to intimate their intention to reduce the grant to the show by £50. But the directors, all the same, furnish a good deal free in the matter of space, tabling, labour, office, and printing and advertising, all representative of considerable cost. Probably no other place could furnish such advantages in these respects as the Crystal Palace does. The Royal Horticultural Society's Council, in their annual report, state that the fruit show therein involves great expenditure, without any financial return. If that be so, then it is difficult to understand why in the balance-sheet for last year's expenditure and income the cost of the show is put at £302 1s. 5d., and the income from the show as £326 12s. 8d. Is (in connection with this show) any credit given for the free admissions to the Palace for three days of the Society's thousands of Fellows? But it is not possible to feel other than sympathy with the Council's earnest desire to maintain the show, and to warmly support its plea for a subscription from the Fellows and others of not less than a sum of £150 to enable the show to be held this year. Cannot some features other than ordinary ones be introduced to help arouse public interest? Can no great personage, who would help to "draw," be invited to come and open the show? Cannot some meetings, attractive to all interested in fruit-culture, be organised? The Palace directors help on the first day with fireworks! Cannot the Royal Horticultural Council organise some sort of horticultural fireworks for the other days? *A. D.*

SALE OF HORTICULTURAL POISONS.—"A. D.," in the last issue of the *Gardeners' Chronicle*, p. 76, properly states the case of the sale of horticultural poisons, and it is quite evident we require a new enactment on this matter. Before the present Pharmacy Act was passed, poisons were carelessly dispensed, and danger was thereby incurred to the public. And it was entirely in the interest of the public that the present Pharmacy Act was passed, by which certain poisons scheduled in the Act can only be sold by certificated chemists. The chief danger to the public consisted in unqualified persons keeping these poisons in bulk and selling them in small quantities. At the time of the passing of the Act, also weed-killers and many of the fumigants in their present form were not known. The sale of weed-killers and fumigants is now an important item in a seedsman's business, and chemists have allowed that business to grow to its present dimensions. They now interfere on what they term public interest. But they have not proved that there has been any danger to the

public in seedsmen selling poisons for garden use; neither have they proved that the public would have any extra security were these poisons to be bought from chemists only. Horticultural poisons are made up in sealed packages, and it little matters whether these packages cross a seedsman's or a chemist's counter—the danger to the public is when they are afterwards opened, and carelessly kept about a place. There would be a real danger if seedsmen kept these horticultural poisons loose as they keep Onion-seed, and sold them to anybody in small quantities. But they are kept only in the packages, as they are sent out by the manufacturing chemists, and as a matter of fact, which every seedsman can speak to, these poisons are only asked for by gardeners or other persons qualified to use them. The whole question of the sale of poisons ought to form the subject of Parliamentary enquiry, when I am sure seedsmen could present a strong case. *Robert Marfee, Paisley.*

CHRYSANTHEMUMS IN FEBRUARY.—Among the latest flowering varieties is Maud Dean; the plant is of good habit, and the flowers are pale pink in colour, fading to white. With me it blooms later than L. Canning, Princess Victoria, or W. H. Lincoln, as cut backs. I enclose a few specimens, and have still scores of blooms not yet fully expanded. *M. Jones, Undermount gardens, Bonchurch, Isle of Wight.* [The variety is certainly useful for late flowering. *ED.*]

THE WEATHER AT BIFRONS PARK, KENT, DURING JANUARY LAST.—Rainfall for the month, 2.70 inches; the heaviest fall being that of the 29th–30th, viz., .98 inch. The minimum shade temperature occurred on the 21st, when 11° of frost were registered. The maximum reading for the month was 52° F., on the 23rd. The month generally was damp and sunless, more especially during the last week. *F. J. S., Bifrons Park gardens, Canterbury.*

THE WEATHER IN SOUTH BUCKINGHAMSHIRE.—After experiencing comparatively mild weather for about a month, a heavy snowfall occurred in this part on the night of February 2-3, such as has not occurred for several years. The fall, accompanied by a strong wind from the north-east, drifted in many places to a depth of 5 and 6 feet, causing much inconvenience, and the blocking up of some of the country lanes. The average depth of the snow in the open country was 9 inches. The thermometer since the snowfall has kept within a degree or two of the freezing-point, with a slight thaw. With an overcast sky and a falling barometer a further downfall seems probable. *C. Herrin, Bourne End, February 5.*

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

FEBRUARY 1.—On this occasion, J. LEE-MANN, Esq., West Bank, Heaton Mersey (gr., Mr. Edge), staged a handsome collection of plants, amongst which were several of real merit; the finest being a plant of *Dendrobium nobile virginalis*, flowering from what appeared to be an 1898 pseudobulb. This lovely variety of *D. nobile* requires no description beyond saying that it is a pure albino form of a very common and beautiful *Dendrobium*. The Committee unanimously awarded it a First-class Certificate.

Cattleya Trianae var. *picurata* received an Award of Merit. This variety is in the way of C. T. Backhouseana, but the splashing in the centre of the petals is not so marked as in that variety; the form of the flower is very fine.

From the same collection came a distinct hybrid *Cypripedium*, which might have been the result of crossing C. Rothschildianum with C. Curtisii. The blossom is of an intense claret colour, and presents the general formation of C. Rothschildianum, except in the drooping of the petals. The latter have peculiar rose-tinted points, as seen also in those of C. Curtisii. Another good *Cypripedium* hybrid was C. *Leeanum giganteum* × C. *Bruno*, the latter parent being a cross between C. *Spicerianum* × C. *Leeanum*. When dissected, the parentage of this hybrid is seen to be very mixed, but the result is satisfactory (An Award of Merit). A Silver Gilt Medal was awarded to Mr. LEE-MANN's group.

W. DUCKWORTH, Esq., Shaw Hall, Flinton (gr., Mr. Tindall) exhibited the pretty *Dendrobium* × *Curtisii* (D. × *Cassiope* × *pureum*). A small plant with flowers having pure white segments, and dark-coloured marking on the labellum (Award of Merit).

T. BAXTER, Esq., Morecambe (gr., Mr. Roberts), gained a Cultural Certificate for a flowered specimen of *Dendrobium* ×

Cassiope; and the same exhibitor sent a batch of well-grown and well-flowered *Odontoglossums*.

Mr. Gratrix, West Point, Whalley Range (gr., Mr. McLeod), sent *Cypripedium* × *Leucanum* var. *Clinkaberryanum*; a very fine form of this pretty hybrid receiving an Award of Merit. From the same gardens came *Cypripedium* × *Thompsoni*, which received a First-class Certificate a year ago; an Award that was confirmed on this occasion.

Mr. J. Cypher, nurseryman, Cheltenham, exhibited *Cypripedium Wootoni*, supposed to be the result of crossing *C. barbatum* × *C. bellatulum* (Award of Merit). He likewise showed *Dendrobium* × *Ethel* (*D. japonicum* × *D. Rolfe* var. *roseum* (Award of Merit).

Mr. J. Robson, Altrincham, sent a fine form of *Cypripedium* insigne named *Dormani*, which, however, was not fully developed; and the Committee wished to see it at the next meeting.

Mr. R. Eichler, Exotic Nursery, Bingley, exhibited three *Cypripediums*, viz., *C. × Henry Graves*, *C. Veitohi*, "*Demidoff's* var.," and *C. insigne*, var. *Ernesti*. P. H.

THE ROYAL SCOTTISH ARBORICULTURAL.

ANNUAL GENERAL MEETING.

THE forty-seventh annual general meeting of this Society was held at No. 5, St. Andrew Square, Edinburgh, on Wednesday, January 31, 1900, at 2 P.M., the Right Hon. the Earl of Mansfield (Scone Palace), President, in the Chair. The Committee met at 1.30 P.M. for the routine business, reading the minutes, and hearing reports of the Council, secretary, auditor, and treasurer.

Though the death-roll of the Society had been heavy, and included such notable members as the Marquis of Lothian, Messrs. Welsh, Dunn, and others, yet many members had joined, the membership having increased from 802 to 834.

Mr. John Methven, in asking for the adoption of the report, moved a hearty vote of sympathy and appreciation with the Marchioness of Lothian and family. The Marquis was President of the Society from 1879 to 1881. This Society has a substantial balance on the credit side of its capital, and revenue-side of the account. The entire routine business, as the selection of officers—President, Vice-President, Secretary, Treasurer, &c.—was speedily carried through.

A proposal, however, by Mr. G. Fraser of Dalzell, to allow members to vote by proxy at all general meetings, was defeated by 28 votes to 6.

Mr. Laird also reported that it was found impossible to have their excursion to France this year as proposed. It also seems that the promised Forestry Exhibition in Glasgow next year (1901) would not be held.

At the close of the routine business, three excellent papers were read. The last is placed first, because it was the more brief and original. The subject was the afforestation of waste lands in this country (about 15,000,000 acres), and his leading idea was that some of the spare time of our soldiers might be employed in the work. He was understood to say that each soldier might perhaps manage some ten acres of forest land. This might be a means of drawing soldiers from the rural districts rather than crowded towns, as well as improve the morale and physique of the army.

The address given by the Earl of Mansfield, advocated the teaching and training and lodging of young foresters on the same lines as had proved so successful in the raising of Scottish gardeners. A three years' apprenticeship; the bothy or lodge system with its social and educational advantages; and terms of journeymanhood on the same or other estates should follow.

The lads for the first year should be employed in the home nursery so as to become familiar with the kinds of trees; their propagation and general treatment. The second year they should have instruction in the formation and management of plantations, including fencing, hedging, rough carpentry, and perhaps road making and bridging. The third year something of the following might be included in the course, viz., the marketing of timber, valuing of standing and felled timber, and the working and management of saw mills. Some training in farm work should also be afforded. This society could also establish a registry of employment for foresters; and it needs dinning into the public mind that foresters were members of an independent profession, and not merely cutters of wood and diggers of drains.

Some humorous observations were made by Mr. J. C. Mackenzie, M.P., on the relations between the forester and the game-keeper. A hearty vote of thanks was passed to Lord Mansfield for his address.

Mr. Nisbet then read an instructive paper on "The present Condition and future Prospects of Forestry in Great Britain." He complimented the Scottish Arboricultural Society on the good work it had done in advocating better methods and schools of forestry; £18,000,000 worth of Coniferous timber, used yearly in these islands, might be grown at home.

Our chief sources of supply were Canada and the Baltic, both in danger of being soon exhausted, through the growing demands of Germany and the United States of America. As to the present condition of British forests, the largest areas of them are pleasure-grounds and game-coverts, suffering from dense planting alternating with excessive thinning.

Woods must be managed on correct plans before they would yield good returns; more thorough and perfect instruction was also needed; Government might advance money, at easy rates of interest; and the injurious rating of woodlands should cease. Something must be done to avert a timber

famine, which threatens to prove far more severe and disastrous than a Cotton famine.

In the evening the members of the Society dined together, with the Earl of Mansfield, at the North British Hotel.

After the usual loyal toasts, that of the Society was proposed by Mr. James Macdonald, the Secretary of the Highland and Agricultural Society, who spoke mainly on the close relationship of forestry with agriculture, and of his belief that the country would greatly benefit if more attention was paid to forestry.

The Chairman, in responding, said he found great ignorance of, and much praise for the Society abroad. He wished such people would mend their manners and become members; admiration at a distance being all very well, but they would rather have it a little closer.

Mr. John Macmillan, the Master of the Merchant Company, proposed the toast Forestry Instruction. He dwelt strongly on the vital importance of the subject; mentioning among other things that the percentage of the acreage under forests was smaller here than in any country in Europe, not excepting Holland and Denmark. The small state of Belgium, with the densest population in Europe, had forests nearly five times greater in extent than this country.

Dr. Nesbit in reply referred to what had been done by the Indian Government, and remarked incidentally that the failure of crops, and the consequent famine in that country, was to a certain extent due to the devastation and clearance of natural forests to an extent almost beyond the power of man to replace. He concluded by advocating the institution of a Chair of Forestry in this country, and appealed to the Merchant Company to assist in this direction.

The meeting concluded with the health of the Chairman being felicitously proposed by Professor Bayley Balfour, of the Royal Botanic Gardens, which was duly honoured.

NATIONAL CHRYSANTHEMUM.

FEBRUARY 5.—The annual general meeting of the members of the National Chrysanthemum Society was held on Monday evening last, at Carr's Restaurant, Strand. The chair was taken by Mr. Percy Waterer (Chairman of the Executive Committee), and there was a good attendance.

The notice convening the meeting, and the report of the Executive Committee, both of which had been previously circulated, sufficiently indicated that there were contentious matters to be raised, that would make the proceedings lively. These meetings of the National Chrysanthemum Society differ considerably from those of other horticultural societies. The proceedings are certainly not "cut and dried," the members do not leave every particle of business to be settled for them by their Committee, and if there is too much evidence of a combative feeling amongst them, they are at least exempt from the charge that they lack interest or earnestness.

REPORT OF EXECUTIVE COMMITTEE.

This report, which was taken as read, described the affairs of the Society as "of a generally satisfactory character." The exhibitions held during last year were considered to be specially remarkable for the "singularly fine blooms of the Japanese type," and expression was given to the general opinion that incurred blooms were "scarcely so numerous and refined as in previous years." With regret the committee has noted "that the incurred, the reflexed, and the Anemone-flowered types appear on the exhibition stages in decreased numbers." It may be hoped that measures will be taken to give increased encouragement to growers of these sections. The Vase class the committee refer to with satisfaction, and acknowledgment is made of the Society's indebtedness to Sir Ed. Saunders and other donors of special prizes. A sub-committee was appointed to take into consideration the relations existing between the parent society and those affiliated with itself, and has recommended that amendments be made in certain privileges the affiliated societies are given. These recommendations were adopted by the Executive Committee, and certain alterations being necessary in the rules, these were submitted to the annual meeting for adoption. The result will be seen below.

THE BALANCE SHEET

showed that the receipts from annual subscriptions amounted to £266 13s. 6d.; foreign members' subscriptions, £8 2s. 4d.; from Royal Aquarium Company, £375; Affiliated Societies' Medals, &c., £64 6s.; donations and special prizes, £151 6s. Altogether the receipts were £1099 0s. 5d. On the expenditure side a sum of £568 13s. was given in prizes; £142 5s. 3d. was paid for medals; £69 19s. 6d. for printing and stationery, &c.; there is a balance at the bank of £76 4s. 6d., and the Committee recommended that the sum of £50 of the reserve fund now on deposit be increased to £100.

The Chairman in proposing the adoption of the report and balance sheet, remarked that he was of opinion that incurred blooms would be better shown at the November exhibition were the date a little later. More encouragement should be given to exhibitors of flowers of this type at the December exhibition. The report should have contained an appreciative reference to the kindness of Lord Rosebery in permitting the society to visit Mentmore in the summer. The charge of £12 9s. 9d. for expenses at the annual dinner should not appear in the accounts. The dinner should be arranged on a business principle, and pay for itself. The Chairman's motion having been seconded by Mr. G. Langdon, references to the dinner item were made by Mr. Simpson and Mr. Newell from different standpoints, and eventually an explanation of the expenses incurred was given by the secretary, which put rather a different light upon matters.

Mr. J. W. Moorman was pleased with the statement of accounts. Two years ago the society had to trespass upon the reserve fund to the extent of nearly £50, and it was now to be paid back. The society was pursuing the right course. The Chairman's motion was then carried unanimously.

ELECTION OF OFFICERS.

Sir Edwin Saunders was re-elected President of the Society by acclamation. Mr. Percy Waterer was re-elected Chairman of the Executive Committee, and Mr. Bevan Vice-chairman. Mr. Wilkins and Mr. Harman Payne were also elected to retain their positions as Treasurer and Hon. Foreign Secretary.

Then the appointment of a General Secretary became necessary, and the meeting approached the question somewhat nervously, anticipating a warm debate.

The re-election of Mr. R. Dean having been proposed by the Chairman, and seconded by Mr. Ballantyne, in short speeches, that showed how much they appreciated the work done in the past by the present Secretary, Mr. Thos. Bevan rose to propose his motion, of which notice had been duly given, to the effect that the election of a secretary be postponed until the Society had advertised, for a properly qualified person to fill the post at a salary of £100 per annum.

Mr. Bevan proceeded to review certain circumstances connected with the fulfilment of the duties of Secretary by Mr. Dean, and to complain of his conduct in several important respects. One ground of complaint was that he had written last year in *American Gardening* an article that appeared to make the most of the financial difficulties that had overtaken a very few Chrysanthemum societies in England, and in other respects to encourage an idea that was prevalent in America that the prestige of the Chrysanthemum as an exhibition flower and of the National Society in England had decreased. Mr. Dean's attitude in regard to the "Stredwick" case, for which the sum of £5 18s. 7d. appears in the expenditure-account, was severely criticised. Amongst other charges brought by Mr. Bevan was that the present Secretary assumes towards the Society's committees and officers an attitude of dictatorship, that makes it very difficult for the officers to continue to work with him. There were other complaints, some of them advanced with considerable warmth, but through all it could be plainly seen that the attitude taken by Mr. Bevan was an honest attitude, and he was generally believed when he declared that he would sooner have forfeited £10, than have felt it his duty to make the speech he had delivered.

But the meeting had already made up its mind that no better secretary could be obtained than Mr. Dean, and especially after his reply to Mr. Bevan had been made, his re-election became a certainty. When therefore, the motion by Mr. Bevan had been seconded by Mr. W. Wells, and remarks had been made upon the subject by a few members, there voted in favour of deferring the election of secretary three members only, and when the chairman's proposal was again placed before the meeting, Mr. Dean was re-elected unanimously, amidst much applause. Mr. Dean returned thanks, and said that though seventy years of age on the 1st of the present month, his energy and his enthusiasm in the work of the National Chrysanthemum Society, were equal to that of any one present of thirty years of age.

Then was announced the result of the election of members to the Committee, nominations for which had been made earlier. Including those members retiring and seeking re-election, there were fifteen vacancies to be filled. The following gentlemen were elected, and the positions are those obtained in the poll: J. H. Witty, J. W. Moorman, D. Ingamelle, J. Lyne, A. Newell, W. A. Sturrock, Cuthbert, J. R. Cholmeley, W. A. Holmes, R. E. Reeve, Swales, J. Brooke, A. J. Foster, E. Dove. Another gentleman elected has since refused the position.

AMENDMENTS TO RULES.

Rule X.—The recommendation of the Executive Committee was to delete Privilege I., and substitute other words which would make it necessary that all delegates from affiliated societies, to the parent society, should become members of the National Chrysanthemum Society. Also to limit their powers of voting, to matters affecting affiliated societies only.

A very animated discussion arose upon this recommendation, and delegates from affiliated societies rose one after another, protesting against the proposed alteration, and declaring that if it were persisted in, affiliated Societies would withdraw in large numbers. Mr. Staten, a representative from the Nottingham Society, vigorously denounced the proposal, and supported an amendment by Mr. Moorman. Upon putting the question to the vote, it was seen that the committee's proposal was lost, and the sense of the paragraph they had drawn up was modified until it read:—

"To appoint one of its *bona-fide* subscribers as a delegate to the Executive Committee of the National Chrysanthemum Society, with power to speak and vote on any subject except finance."

The following new privileges were then added without opposition:—

2.—"That such Delegate be annually elected by the Society appointing him at a properly constituted meeting of such Society."

3.—"That a copy of the resolution appointing such Delegate be sent to the Secretary of the National Chrysanthemum Society, with an intimation to the effect that the appointment was made in due order."

Condition 1 of Rule X. was rescinded, and the following substituted:—

"That with the one special exception hereafter mentioned, the Society's Medals and Certificates be awarded only to classes for Plants or Cut Blooms of Chrysanthemums, and

that all inscriptions be recorded thereon before being handed to the winners; but Affiliated Societies obtaining the Medals of the Society are permitted to purchase one extra Medal, which may be awarded to non-competitive exhibits of any kind at their exhibitions, at the discretion of the judges.

It was further resolved that all alterations in the Rules rendered necessary by the above resolutions be carried out.

The business of the evening was thus concluded, after having lasted close upon four hours.

MISCELLANEOUS.

Iale of Wight.—On Thursday last a public meeting was held in the Newport Guildhall, with the object of forming a local Chrysanthemum Society. Mr. W. Morris presided over an attendance which was small, largely due to the inclemency of the weather. It was resolved, on the motion of Mr. W. E. Wickens, that a Newport Chrysanthemum Society be formed, and that an exhibition be held in November next. A local committee was elected, with P. T. Mew, Esq., J.P., C.C., President; Dr. M. L. Coombes, Treasurer; and Mr. C. H. Cave, Honorary Secretary.

Iale of Wight Horticultural.—On Saturday, February 3, this Association held their adjourned annual meeting at Warburton's Hotel, Newport. Dr. J. Groves, B.A., J.P., presided over a good attendance of members. It was resolved to elect local committees at Cowes, Ryde, Shanklin, Ventnor, Freshwater, and Newport, with seven members each; and it was decided to amalgamate with the Ryde Horticultural Society in the holding of an exhibition of spring flowers in April next. It was resolved to hold an exhibition of fruit and honey at Newport in October. It was decided to award the Association Certificates to meritorious exhibits staged at any of the Island shows during the year 1900. The programme of lectures and places of meeting for the current year was left in the hands of the Secretary. A sub-committee was appointed to make arrangements for issuing an Association almanac in book form, to contain the papers read at the meeting, and other information. A lengthy meeting was brought to a close by the election of seven new members. S. H.

Devon and Exeter Gardeners.—At a recent meeting of the members of this association, a paper upon "Gardening as a Profession," was read by Mr. G. CAMP, gr. to Mr. E. BYROM, Culver. The essayist said that the professional gardener is underpaid. Like other callings, that of gardening is subject to the law of supply and demand; there is now an excess of supply over demand. The system of apprenticeship should be more strictly adhered to, and means taken to prevent the profession from being overcrowded by half-qualified men, who originally were admitted to gardens as "helpers." The good work that is being done by the Gardeners' Royal Benevolent Institution and the Royal Gardeners' Orphan Fund was referred to appreciatively by Mr. CAMP, and by several of those who subsequently engaged in what proved to be an animated discussion.

The Pomological, Boskoop, Holland.—The following were awarded Certificates—*First Class*: to *Ploea excelsa aurea* magnifica, imported by Messrs. Ottolander & Hooftman, Boskoop; to *Azalea Yodogama*, imported by Messrs. M. Koster & Sons, Boskoop; to *Azalea "Peter van Noordt"*, raised from seed by Messrs. P. van Noordt & Sons, Boskoop; to *Hemerocallis aurantiaca* major; to *Spiraea Aruncus* Kneiff; to *Sambucus pubens maxima*, all of which were imported by Mr. K. Wezenburg (C. de Vos), Hazerswoude, Holland. *Second Class*: to *Chamecypris Lawsoni* and erecta var. *filiformis*, imported by Messrs. Ottolander & Hooftman, Boskoop; to *Gaultheria procera*, imported by Messrs. G. Y. Alberts & Co., Boskoop; to *Spiraea callosa* Froebel foliis variegata; to *Polygonum Baldschuanicum*, both imported by Mr. V. Wezenburg (C. de Vos), Hazerswoude; to the Apple "Van der Stam's Orange Reinette," raised from seed by Mr. G. Van der Stam, Boskoop; to the Apple "Queen Wilhelmina," raised from seed by Mr. P. van Fol, Boskoop. *First Class*: to the Black Currant "Goliath," raised from seed by Messrs. J. Boer Wz & Sons, Boskoop. P. A. Ottolander, Chief Secretary of the Pomological Society, Boskoop.

Chester Paxton.—Owing to the death of the Duke of Westminster, K.G., the annual social gathering of the members of this Society was postponed until last Saturday evening, when about 150 members met at the Grosvenor Museum, under the presidency of Mr. Robert Wakefield. After tea had been partaken of in the Art Gallery, a capital concert was provided in the Lecture Theatre. Mr. Siddall gave a brief account of the war, his lucid descriptions of many of the chief places of interest in South Africa being illustrated by lantern-slides. The musical programme included several patriotic songs, including "Soldiers of the Queen" and "The Absent-Minded Beggar," and a substantial sum was collected for the war fund. Mr. N. F. Barnes proposed, Mr. John Wynne seconded, on behalf of the Society, a vote of thanks to all those who had contributed to the evening's enjoyment, which was cordially responded to; as also a similar compliment to the President, proposed by Mr. Miln.

Hornsey and District Chrysanthemum.—The annual meeting was held on the 31st ult., and the report and balance sheet were adopted with much satisfaction. A balance during the year was acquired of £8 6s. 11d. The late Secretary, Mr. T. A. Newman, who has been obliged to resign the position owing to a change of locality, was presented with a marble timepiece and an address, as a mark of appreciation upon the part of the members for the services rendered by Mr. Newman. The new Secretary is Mr. T. W. Lester, 17, Fairfax Road, Hornsey.

Obituary.

JAMES PALLETT.—We regret to announce the death, on Monday last, of Mr. J. Pallett, the Superintendent of Waterlow Park, Highgate. Deceased was out in the park during the morning, and appeared then to be in his usual state of health. When at mid-day he reached the lodge in which he lived, he remarked to his wife that he felt faint, and at once sat down in an armchair, and expired before any assistance could be rendered to him.

GEORGE BROWN.—By the death on Jan. 24, at the age of 93, of Mr. George Brown, we lose a very capable representative of the old type of Scotch gardeners. He was a native of Aberdeenshire, and acquired his earliest knowledge of gardening in Scotland. In the early thirties he came to London, finding employment in Messrs. Henderson's Pine-apple Nurseries. For ten years he occupied a situation as gardener in Leicestershire, and had for a near neighbour the late Peter Greive, gardener at Culford Hall. Mr. Brown went to Sandford Priory in July, 1848, as gardener to the then owner, Mr. Chateris. At this time the pleasure grounds there were very limited, and so began what was the crowning effort of his life. He had no sooner become settled in his new home than he began hybridising the then very limited collection of Rhododendrons contained in one bed, and so successful was he that several of our very best varieties owe their origin to his efforts. Space had to be made for many of his favourite varieties, and eventually many acres were planted with Rhododendrons, and hardy Azaleas, which latter he crossed with excellent results. Notwithstanding the work of raising new varieties of Rhododendrons and Azaleas which occupied much of his attention, he was a good all-round gardener. The deceased retired from his charge five years ago, whilst still hale and hearty, the gardens and estate having been taken over by various tenants. Charles Dalby, Greenham Lodge Gardens, Newbury, Berks.

THE WEATHER.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period January 28 to February 3, 1900. Height above sea-level 24 feet.

1900.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				TEMPERATURE OF THE SOIL AT 9 A.M.			
		AT 9 A.M.		DAY.	NIGHT.	RAINFALL.	At 1-foot deep.	At 2-foot deep.	At 4-foot deep.
		Dry Bulb.	Wet Bulb.						
SUN. 28	N.N.W.	33.9	32.8	37.9	31.5	0.21	39.1	42.5	44.4
MON. 29	N.N.E.	33.6	33.9	39.8	32.7	0.02	38.2	41.6	44.3
TUES. 30	N.N.E.	36.9	35.0	39.1	35.4	...	38.8	41.3	44.2
WED. 31	N.N.E.	37.6	35.9	39.5	33.5	...	38.9	41.3	44.1
THU. 1	E.N.E.	34.7	32.8	30.6	33.0	...	38.9	41.2	44.0
FRI. 2	E.N.E.	35.1	34.7	36.9	33.0	0.65	37.5	41.1	43.9
SAT. 3	N.E.	34.5	33.7	34.1	32.8	0.08	37.2	40.8	43.9
MEANS...	...	35.5	34.0	37.6	33.5	0.91	38.4	41.4	44.1

Remarks.—The weather during the week has been remarkable for cold, north-easterly winds. Sleet and rain fell on Friday, followed in the evening by snow to the depth of 3½ inches.

GENERAL OBSERVATIONS.

The following summary record of the weather throughout the British Islands, for the week ending February 3, is furnished from the Meteorological Office:—

"The weather during this period varied greatly in different parts of the kingdom. Over all the eastern and south-eastern districts it was very gloomy, with frequent falls of snow, sleet or cold rain, the fall of snow or sleet on Friday night being very heavy over our south-eastern counties. Over Ireland and the extreme western and northern parts of Great Britain,

however, the conditions were generally fair, and the falls of sleet or rain were slight and infrequent.

"The temperature was below the mean, the deficit ranging from 2° in the 'Channel Islands,' and 3° over the eastern and north-eastern parts of Great Britain, to 5° in the 'Midland Counties' and 'England, S.W.,' and to 6° in 'Scotland, W.' and 'Ireland, S.' The highest of the maxima were registered during the earlier half of the period, and ranged from 48° in 'Ireland, S.,' and the 'Channel Islands,' to 41° in 'England, E.,' the 'Midland Counties,' and 'Scotland, W.' The lowest of the minima were recorded either at the commencement or end of the period, and ranged from 14° in 'England, N.W.' (at Newton Belguoy on Friday), and from 18° and 19° in 'Scotland, E. and N.,' to 28° in 'England, S.W.,' and to 36° in the 'Channel Islands.'

"The rainfall was more than the mean in 'England, N.E., E., and S.,' but less in all other parts of the kingdom.

"The bright sunshine exceeded the mean in 'Scotland, N. and W.,' and over Ireland, the excess in the latter country being very large. The percentage of the possible duration ranged from 5 in 'England, E.,' and 8 in the 'Midland Counties' and 'England, S.,' to 23 in 'Scotland, N.,' 37 in 'Ireland, N.,' and 45 in 'Ireland, S.'"

MARKETS.

COVENT GARDEN, FEBRUARY 8.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

FRUIT.—AVERAGE WHOLESALE PRICES

	s. d. s. d.		s. d. s. d.
Apples, in sleeves:		Grapes, English,	
— Beefeins, bush.	4 0 6 0	— Alicante, per lb.	1 3-1 9
— Blenheim, per bushel	4 0-6 0	— Grapes, Belgian	1 6-1 10
— Northern Greenings, per bushel	4 6-5 0	— Class A, pr. lb.	1 9-2 0
— Queenings, bus.	4 0-6 0	— Class B, pr. lb.	1 3-1 6
— Wellingtons, bushel	5 0-7 0	— Muscats, Cl. A., pr. lb.	2 6-6 0
— Various, bushel	2 6-5 0	— Almetra, dr. lb.	6 0-9 0
— Nova Scotia, various, barrel	17 0-22 6	Lemons, Messina, 250	8 0-10 0
— Baldwins, barrel	18 0-20 0	— Palermo, case	7 0-18 0
— Greenings, barrel	18 0-18 0	Lyches, Chinese, new, pht., 1 lb.	0 10 —
— Golden Russets, barrel	22 0-25 0	— Oranges, Denia, 420	12 6 —
— Ribstones, barrel	25 0 —	— Bitters, 240	7 0 —
— N. Spies, barrel	18 6-20 0	— Blood	7 0-8 0
— Californian, cases, New Town	0 0-10 0	— Jaffa, case of 144	7 0-8 0
— Canadian, barris.	13 0-18 0	— Mandarin, boxes	0 8-1 6
Bananas, per bunch	4 0-8 0	— Murcia, case of 240	7 6 —
Chestnuts, Spanish	12 0 —	— Valencia, case of 714	12 0 —
Cobnuts, per lb.	0 7½ —	Pears, half cases	10 0 —
Cranberries, case	6 0-7 0	— Californian Easter	9 0 —
— American, per qt.	0 4 —	— Beurres, case	9 0 —
— Russian, kegs	1 9 —	Pines, each	3 0-4 6

OUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES

	s. d. s. d.		s. d. s. d.
Arum Lilies, dozen blooms	14 0-18 0	Narcissus (yellow)	
Asparagus "Fern," bunch	2 0 2 6	— doz. bunches	6 0-8 0
Carnations, per doz. blooms	3 6-5 0	— (double) dx. beh.	8 0-7 0
Cattleyas, per dozen	15 0-18 0	— (white) doz.	8 0-4 0
Eucharis, per dozen	8 0-10 0	Odontoglossums, per dozen	4 6-9 6
Gardenias, per doz.	8 0-6 0	Poinsettias, dozen blooms	15 0-18 0
Lilium Harrisi, per dozen blooms	10 0-14 0	Roman Hyacinths, doz. bunches	9 0-12 0
Lilium longiflorum, per dozen	12 0-16 0	Roses indoor, per dozen	3 6-7 6
— lancifolium album, per dozen	6 0-4 0	— Tea, white, per dozen	3 6-7 6
— lancifolium rubrum, per doz.	8 0-4 0	— Yellow, Paris, per doz.	3 6-7 6
Lily of Valley, per doz. bunches	12 0-24 0	— Safrano, per doz.	2 6-3 6
Maidenhair Fern, per doz. bunches	4 0-6 0	Smilax, per bunch	8 0-6 0
Marguerites, p. doz. bunches	8 0-4 0	Tuberose, per doz. blooms	0 8-1 0
Mignonette, dozen bunches	4 0-6 0	Tulips, per bunch	1 3-2 0
		Violets, Parma, per bunch	8 0-12 0
		— dark (French), per doz. behs.	2 6-4 0
		— (English), per doz. behs.	4 0-5 0

POTATOS.

Main Crop, &c., 70s. to 90s.; Dunbar, 110s.; Other varieties, 65s. to 85s. John Bath, 32 & 34, Wellington Street, Covent Garden.

REMARKS.—In our last report Brussels Sprouts per sieve should have read 1s. to 2s. 6d., the latter price being realised by a few consignments only. Cape fruit include Peaches, in cases of 24 or 36, 6s. 6d. to 12s.; Plums, per case, 6s. to 8s.; Grapes, Black Hermitage (case of 16 lb. to 18 lb.), 6s. to 8s. These Hermitage Grapes are very like our Black Clusters. The Potato trade remains much the same as last week. Bananas are a slow trade.

VEGETABLES.—AVERAGE WHOLESALE PRICES

s. d. s. d.	s. d. s. d.
Artichokes, Globe, per doz. ... 4 0 4 6	Mint, new, Ch. Is., p. doz. bunches ... 8 0 —
— Jerusalem, per sieve ... 1 0 —	Monks' beard (Barbe de Capucine), p. bunch ... 0 8 —
— Stachys or Chinese, per lb. ... 0 4 0 6	Mushrooms, house, per lb. ... 0 10 —
Asparagus, Spruce, per bundle ... 0 9 1 0	Onions, bags ... 5 0 6 0
— English forced, per bundle ... 6 0 —	— Bordeaux, boxes ... 8 0 8 6
— Giant, bundle, 12 0 14 0	— picklers, in sieves ... 2 6 3 0
— Paris, Green, per bundle ... 6 0 —	— Valencia, cases ... 7 6 —
— Spanish, bud, 1 9 2 0	— English, cwt. ... 6 0 6 6
Beans, Channel Islands, per lb. ... 2 0 2 6	— German, bags ... 5 0 —
— Madeira, basket ... 8 0 8 4	— French ... 8 6 6 0
Beetroot, new, per dozen ... 0 6 1 0	Parsley, per dozen bunches ... 2 0 2 6
— in bush ... 1 8 2 0	— per sieve ... 1 0 1 6
Broccoli, Cornish, crates ... 6 0 8 0	Parsnips, per dozen ... 0 6 1 0
Brussels Sprouts, p. sieve ... 1 8 2 6	— bag ... 8 0 8 6
— per bushel ... 2 0 2 6	Potatoes, Old vars., per ton ... 60 0 90 0
Brussels's Sprouts, Tops, per bush. ... 1 0 1 3	— Dunbar Main Crop, per ton ... 100 0 110 0
Cabbage, tally ... 5 0 6 0	— New Channel Islands, frames, per lb. ... 0 10 —
— dozen ... 1 0 1 3	— Teneriffe, in boxes, cwt. ... 12 0 16 0
— Savoys, p. tally ... 4 0 10 0	Radishes, Long, per doz. ... 0 10 —
Carrots, English, p. dozen bunches ... 8 0 —	Radishes, round ... 1 0 1 6
— good, cwt. bags, washed ... 3 6 4 0	Rhubarb, Yorks, pr. dozen bunches ... 1 8 1 6
Cauliflowers, dozen ... 1 6 3 0	Salad, small, punnets, per dozen ... 1 8 —
— Cornish crates ... 6 0 8 0	Salsafy, bundle ... 0 4 —
— Italian, baskets of 18 ... 3 0 4 0	Scotch Kale, bush. ... 2 0 2 6
Celeriac, per dozen ... 2 6 —	Seakale, per dozen punnets ... 12 0 16 0
Celery, red, roll doz. ... 8 0 18 0	— Shallots, per lb. ... 0 8 —
Chicory, per lb. ... 0 3 —	Spinach, French, crates ... 8 6 4 0
Colewort, p. bush. ... 1 6 2 0	Spinach, Winter, per bushel ... 4 0 4 6
Orons, dos. punnets ... 1 6 —	Sweet Potatoes, per lb. ... 0 3 —
Cucumbers, dos. ... 4 0 10 0	Tomatoes, Canary, deeps ... 4 0 5 0
Endive, new French, per dozen ... 1 9 —	— trays ... 2 0 2 6
— Batavian, dos. ... 1 9 —	Turnips, per dozen bunches ... 8 0 3 6
Garlic, new, per lb. ... 0 8 —	— cwt. bags ... 2 6 3 0
— per cwt. ... 18 0 16 0	Turnip Tops, bags ... 2 6 3 6
Horseradish, English, bundle ... 1 6 2 0	Watercress, p. doz. bunches ... 0 9 0 10
— foreign, per bundle ... 1 0 1 2	
Leeks, dos. bunches ... 1 6 2 0	
Lettuce, French, Cabbage, dozen ... 0 10 —	

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Adiantum, p. doz. ... 5 0 7 0	Foliage plants, var., each ... 1 0 5 0
Arbor-vitæ, var., doz. ... 6 0 8 0	Lily of Valley, each ... 1 9 3 0
Aspidistra, p. doz. ... 18 0 36 0	Lycopodiums, doz. ... 8 0 4 0
— specimen, each ... 5 0 10 6	Marguerite Daisies, per dozen ... 8 0 12 0
Orotans, per doz. ... 18 0 36 0	Myrtles, per dozen ... 6 0 9 0
Dracenas, var., doz. ... 12 0 24 0	Palms, various, ea. ... 1 0 15 0
— viridis, per doz. ... 9 0 18 0	— specimens, each ... 11 0 68 0
Ericas, var., per doz. ... 18 0 36 0	Pelargoniums, scarlet, per dozen ... 8 0 12 0
Eunonymus, various, per dozen ... 6 0 18 0	Poinsettias, p. doz. ... 18 0 30 0
Evergreens, var., per dozen ... 4 0 18 0	Primulas, per doz. ... 5 0 8 0
Ferns, small, per 100 ... 4 0 6 0	Roman Hyacinth, per doz. ... 10 0 12 0
Ferns, in variety, per dozen ... 4 0 18 0	Tulips, per doz. ... 1 6 2 6
Ficus elastica, each ... 1 6 7 6	

SEEDS.

FEBRUARY 7, 1900.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., report to-day's market thinly attended, with only a quiet business passing. The continued demand from Germany, for English Cloverseed, combined with the firm quotations cabled from America, inspire London holders with confidence meantime; there is no change this week in either Alsike, White, or Trefoll. As regards Timothy, the tendency is still upwards. Blue Peas, and Haricot Beans, owing to the wintry weather, meet an improved request, whilst there has been more doing both in Spring and Winter. Tares and Birdseeds move off slowly, on former terms; but Mustard and Rapeseed are held for higher rates. Linseed continues dear.

FRUIT AND VEGETABLES.

GLASGOW: February 7.—The following are the prices since our last:—Apples, Canadian; Baldwins, 19s. to 22s. per barrel; Northern, Spy, 18s. to 22s. do.; Greenings, 17s. to 18s. do.; American-California, Newtown Pippins, 9s. to 12s. per box; Grapes, English, 1s. to 2s. 6d. per lb.; do., foreign, Alameda, 12s. to 16s. per barrel; do., best, 30s. to 30s. do.; Bananas, extras, 9s. to 10s. per bunch; No. 1, 8s. to 9s. do.; No. 2, 6s. to 7s. do.; small, 5s. to 6s. do.; Oranges, Murcia, 7s. to 8s. per half case; Valencia, ordinary, 420's, 8s. 6d. to 9s. 6d. per box; large, 10s. to 10s. 6d. do.; extra large, 12s. to 14s. do.; Jumbos, 15s. to 16s. do.; large and extra large, 714's, 11s. to 13s. do.; Seville Bitter Oranges, 10s. per half chest; Palermo, do., 5s. to 6s. per box; Lemons, Palermo, 8s. to 10s. per case, and 4s. 6d. to 6s. per box; Mushrooms, 1s. to 1s. 2d. per pound; Onions, English, 5s. 6d. to 6s. 6d. per cwt.; do., Valencia, 5 in a row, 8s. per box; 4 in a row, 7s. do.; Tomatoes, Teneriffe, 3s. to 4s. per case; half case, 5s. to 6s.; Turnips, Swedes, 1s. 6d. to 1s. 8d. per cwt.; Carrots, 3s. 6d. to 4s. do.; Cauliflowers, 1s. 9d. to 2s. 2d. per dozen; Cabbages, 8d. to 1s. 6d. do.; Celery, 8d. to 1s. 2d. do.

LIVERPOOL: February 7.—Wholesale Vegetable Market.—Potatoes, per cwt., Lynn Greys, 8s. to 9s. 6d.; Main Crop, 3s. 4d. to 4s. 6d.; Bruce, 3s. 4d. to 3s. 9d.; Champions, 3s. 4d. to 3s. 6d.; Turnips, Swede, 1s. to 1s. 8d. per cwt.; Carrots, 3s. 6d. to 4s. 3d. do.; Parsley, 6d. to 8d. per dozen bunches; Onions, foreign, 3s. 9d. to 4s. 6d. per cwt.; Cauliflowers, 1s. 9d. to 2s. 3d. per dozen; Cabbages, 8d. to 1s. do.; Celery, 6d. to 1s. 2d. do. St. John's.—Potatoes, 1s. per peck; do. new, 3d. per lb.; Grapes, English, 8s. do.; Pines, English, 4s. 6d. to 6s. each; Cobnuts, 1s. per lb.; Asparagus, 1s. per bundle; Cucumbers, 8d. to 1s. each; Mushrooms, 1s. 4d. per lb. and basket. Birkenhead.—Potatoes, 1s. to 1s. 3d. per peck; Cucumbers, 1s. each; Filberts, 10d. per lb.; Grapes, English, 1s. 6d. to 2s. do.; do., foreign, 4d. to 8d. do.; Pines, foreign, 4s. to 6s. each; Mushrooms, 1s. to 1s. 6d. per lb.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending February 3, and for the corresponding period of 1899, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1899.	1900.	Difference.
	s. d.	s. d.	s. d.
Wheat	26 6	25 8	— 0 10
Barley	27 2	25 4	— 1 10
Oats	17 0	16 6	— 0 6

ENQUIRY.

LAELIA ANCEPS CALVERTIANA AND ROSEA.—A correspondent would be pleased to hear if anyone has these varieties still alive. He would much like to see them, for so far as he is aware they are dead.

RATS.—To catch rats you must deceive them. Get an iron trap (gin) and adjust it so that a 2 oz. weight will spring it when placed on bridge. Next get a box large enough for trap to lie in, and about 4 inches or 5 inches deep. Now set the trap, and lay it carefully in the box, and cover it over with tissue-paper, and sprinkle a few bits of bread over it. The rat smells it, he finds it, and jumps on to the solid bottom (as he thinks), and is caught by the fore-legs. I have been quite successful that way. But, better still, keep all food out of their way, and as far as you can out of their smell, and do not drop or throw any food about. Food is what they come to seek. At my house we are very particular that way, and I have not heard or seen a rat, mouse, or beetle for a long time, and yet my neighbours are pestered with them. I have an earthen pan with cover for bread, and a hanging cupboard for other foods, and no rat or mouse can get in, and all crumbs are swept up. Starve them and set your dogs on them, and I think you will soon be free of them. W. M., in *English Mechanic*.

CATALOGUES RECEIVED.

SEEDS, ETC.

W. ATLEE BURPE & Co., Philadelphia.
LOUIS VIEWE, Quedlingburg, Germany.
JOHN RUSSELL, Richmond, Surrey.
DICKSON, BROWN, & TAIT, 43 and 45, Corporation Street, Manchester.

MISCELLANEOUS.

F. GIFFORD, Montague Nursery, Tottenham, London.—Carnations and Pinks.
WM. CLIBB & SON, Oldfield Nurseries, Altrincham.—Chrysanthemums.
LOUIS VAN HOUTTE PARK, Ghent, Belgium.—Begonias, Gloxinias, Hippeastrums, Ornamental Foliage Plants, &c.
KELWAY & SON, Langport, Somerset, General Catalogue of Plants, Seeds, Bulbs, &c.
JOHN FORBES, Hawick, Scotland, Plants of what are termed "Florists' Flowers" and Hardy Border Plants.
BILLIARD & BARRE, 6 & 20, Rue de Chateaufort, Fontenay-aux-Roses (Seine).

GARDENING APPOINTMENTS.

MR. CYRIL ARCHER, for some years in the Gardens at Addington Park, Croydon, and Compton Wood, Eastbourne, as Head Gardener to His Grace the Archbishop of Canterbury, Lambeth Palace.
MR. DONALD LEITCH, for the past two years Foreman at Alloa House gardens, Alloa, N.B., as Head Gardener to Mrs. STIRLING, Kippenross, Dunblane, N.B., entering on his duties first week in March.

ANSWERS TO CORRESPONDENTS.

CORRECTION, p. 7.—For liquid air read hydrogen.

CYCLAMEN FLOWERS: A. L. The doubling of the flowers is frequent, and not uncommon, and in some instances the peculiarity is becoming fixed.

CYCLAMEN LEAVES DECAYING: O. H. V. The result of a check, or unsuitable methods of cultivation.

DAHLIA LITERATURE: B. C. R. We would refer you for a succinct history and descriptive notes of the plant to the *Dictionary of Gardening*, by G. Nicholson, published by Upcott Gill, 170, Strand, W.C.; and to the *Propagation and Improvement of Cultivated Plants*, by F. W. Burbidge, published by Blackwood & Sons—a work probably now out of print.

INSECTS: W. E. D. The curious excrescence on the Laurel branch is the cocoon containing a living chrysalis (pupa) of the Puss-moth (*Dicranura vinula*). Willows and Poplars are the food-plants of this beautiful insect; and the individual which has spun up its cocoon on your Laurel branch had probably fed on one or other of those trees in the immediate neighbourhood of your interesting find. R. N.

INSECTS: Foreman. We can find none. You should send such specimens in a small box or bottle rather than in an envelope.

IVY, WHEN TO CUT BACK THE SHOOTS AND FOLIAGE: Ivy. In order not to have the wall bare of greenery for a longer period than is necessary, wait till the first signs of growth are observed, then you may trim it in closely, and not have to wait more than a month for a fresh covering of leaves. The warmer aspect will show leaves first, and the east side may be a week or ten days behind it in point of time.

NAMES OF FRUITS: A. C. 1, Yellow Ingestre; 2, Pitmaston Nonpareil.—A. L. G. 1, Herefordshire Beefing; 2, Reinette Diel.—J. R. You have exceeded the number of specimens allowed by our regulations, three are therefore named this week, and the others will be dealt with in a future issue; 1, Cockle Pippin; 2, Calville Rouge d'Hiver; 3, Cobham.—C. W. S. The specimen is not recognised, but it is reserved for further examination and comparison, and a reply will be given next week.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—W. B. G., Stafford. A very finely coloured form of *Laelia anceps*. The other is a remarkably good variety of *Cattleya Walkeriana nobilior*, not *C. dolosa*.—E. J. L. 1, *Thunia orientalis*, var.; 2, *Thunia orientalis*, var.; 3, *Cupressus Lawsoniana*, var. *erecta viridis*; 4, *Cupressus thyoides*.—T. F., Magdeburg. The *Cattleya* belongs to the *C. Triani* alba section, usually known as *C. T. delicata*, but a remarkably pretty form of it.—A. B. *Calanthe vestita luteo-oculata*.

POTATOS: J. W. Y. We are unable to name varieties, as to do this the foliage, flowers, habit, &c., must be under observation, and necessarily at this date you are able to send only the tubers.

WEATHER: F. J. S. We are much obliged, but with a weather record from Chiswick, and that afforded by the Meteorological Office we are sufficiently well served. Instances of remarkable weather in any part are always acceptable.

COMMUNICATIONS RECEIVED.—Sir W. T. Threlton Dyer.—T. B.—E. S.—W. M.—A. D. H.—W. P. E.—M. W. E.—A. H.—G. F. W.—Oxon, F. G. S.—B. Hartland—H. T. M.—R. Fenn—Heleneveld (next week).—T. T.—D. T. F.—E. C.—S. A.—J. O'B.—G. H.—W. M. W.—H. P.—C. H.—De B. C.—A. B.—L. R.—H. M.—J. S.—J. L.—G. W.—G. G.

Continued Increase in the Circulation of the "GARDENERS' CHRONICLE."

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "Gardener's Chronicle" has, since the reduction in the price of the paper,

TREBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, and ALL CLASSES OF GARDENERS and GARDEN-LOVERS at home, that it has a specially large FOREIGN and COLONIAL CIRCULATION, and that it is awarded for reference in all the principal Libraries.



THE Gardeners' Chronicle

No. 686.—SATURDAY, FEB. 17, 1900.

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THE ART AND SCIENCE OF STOKING.

A BELGIAN horticulturist, unacquainted with English methods of stoking, is desirous of information in regard to several matters connected with the heating of glasshouses. To horticulturists of all classes, and many inhabitants of the colder parts of the earth, this is a matter of much interest, and some importance; seeing that success in the culture of the occupants of glasshouses and pits, harbouring plants which require artificial heat, depends in a great measure, upon the manner in which the temperatures are maintained in the various structures. An ordinary boiler, longer than it is wide, should be set on a bed of brickwork, having a rise of at the least half an inch per foot run, from the front to the back, at which point the flow-pipe connecting with the main flow-pipes in the house or leading thereto, should be fixed, in order to accelerate the circulation of the water in the boiler and pipes. Attention to this important matter of a rise in the bedding and slope of the fire bars at the right time, is of the greatest importance to the satisfactory working of the heating apparatus as a whole. Thus it will be seen that a horizontal tubular, a Cornish cylinder, and any kind of saddle-boiler, say of nine feet in length, should have at the least a rise of four and a half inches from the furnace-door to the back, and six inches would not be too much. Another important point to be observed in the setting of such boilers, is not to allow too much

space between the top pipes or dome of boiler, and the fireproof tiles or brick arch covering the boiler; a clear space of not more than four inches being all that is needed. This will cause the flame to impinge on the top part of the boiler, causing the rapid warming of the water in the boiler. The damper for regulating the draught in the chimney, should be fixed immediately above the point where the flue enters the same. If the furnace-house be situated in the open, that is, distant from trees and buildings, the chimney-stack may be built from 12 to 15 feet high, in order to insure a good draught. A height of 12 feet will be sufficient where coke is burnt, but for the combustion of anthracite coal, the sharper draught afforded by a chimney higher than these figures is essential.

To begin at the beginning, the best way to light a fire in a garden furnace, where the necessary quantity of live coke or coal necessary to do so is not at command, is to build some small and then larger pieces of kindling wood pyramically round a central mass of paper, dry chips, straw, or shavings, following these with about four layers of coke or coal broken small, before the paper, &c., in the centre is lit; fuel in small increasing quantities being added at intervals of time until a good body of fire is secured, and at which stage it may be said the operations of stoking begins. Then the mass of glowing fuel should be pressed nearly to the back part of the furnace-bars with the fire-hoe, and sufficient fresh fuel applied to get the heat of the water in the boiler and pipes up to a high figure, and maintain it at the boiling-point if this be found necessary, which however is rarely the case. In starting the fire, the damper in the chimney should be drawn out considerably, in order to secure sufficient draught, but after the fire has become established, it should be pushed back about three-fourths of its length, so that no undue amount of heat may escape by way of the chimney. Before applying more fuel, push the clinker-bar underneath the fire the full width of the furnace-base, removing the clinkers that may have formed during the previous hour or two; push the fire to the back part of the furnace, as previously advised, adding more fuel in the front, and repeat this operation as often as the fire and requirements of the houses make it necessary. A garden furnace should be under examination at short intervals of time from early morning onwards, until it is banked-up for the night; always being careful not to put any more fuel on the fire than is absolutely necessary to maintain the right degree of heat in the several houses and pits.

BANKING-UP.

In making up the fire for the night, in addition to the usual extraction of clinkers and addition of fuel, if coke be used, and when the furnace is half-filled, throw into the furnace a few shovelfuls of ashes, then more coke, then more ashes, and proceed thus until the furnace is filled nearly to the bottom of the boiler, finishing off with a coating of ashes at the top and front of the mass. This done, push the chimney-damper nearly home; a space of one inch only being left for the passage of the smoke. The following morning the condition of the fire should be noted. It may have burned sufficiently low to maintain the right degree of heat in pipes and houses, and at the same time consist of a good body of clear fire to start with, in which case the draught may be increased, and a little fuel and ashes added. On the

other hand, should the mass of burning fuel have become low, the method of making up the fire for the night should be altered, and less draught allowed, whilst more ashes or coal-dust should be put on the fire in banking it up at night. First thing in the morning, in addition to taking out the clinkers, the ashes should be removed from the sides of the boiler, by using the clinker-bar energetically between the bottom of the boiler and side pipes and flues of the furnace, in order to give free play to the flames; and in the case of a Cornish or any kind of saddle-boiler under and over the latter. This operation should be repeated once in the afternoon, and again in the evening, allowing the fire to burn somewhat low, the more readily to perform the work. The flues should at least be cleaned well out three times in the week during hard firing in winter and spring, beginning with the top central flue, cleaning the pipes or dome of saddle-boiler with a small hoe and brush, working these well in among the top and side pipes, &c., and afterwards drawing the ashes and soot out of the bottom flues, situate on either side of the base of the furnace, in addition to clearing the base of the boiler in the furnace.

I may here state that the tools necessary for stoking consists of a shovel-hoe, 7 inches wide and about 5 inches deep, and attached to a long stoutish iron handle, this for pushing clear fire back in furnace, and drawing the ashes from underneath; also a hoe about 2 inches wide and 1 inch deep, and attached to a long light iron handle, for cleaning out the flues; and a poker and clinker-bar combined, this necessarily being strongly made, to enable it to withstand the strain involved in breaking up and removing clinkers from the furnace.

KINDS OF FUEL.

Anthracite coal requires very little attention in the matter of stoking; the large lumps should be put on the fire unbroken, that is, if they are not too large to conveniently place in the furnace. Anthracite of the Peacock vein is the best to use. If the fire is made up, say, at ten o'clock at night, with anthracite, there will be a body of clear fire eight or nine hours later, and a good heat in the houses. Seeing that heat can be got up in a much quicker time with coke, it will be advisable to have some coke to start with in the morning, and afterwards to make use of anthracite. This is what may be termed hard coal; and the various kinds of house-fuel of a softer nature burn much more quickly than hard coal, and consequently are not only more expensive to use for hot-house purposes, but they require more attention in stoking.

BOILERS.

Having had practical experience of many types of boilers, including the several supposed improvements, also the old-fashioned saddle, I have come to the conclusion that for efficiency, durability, and economy of fuel and labour, there is none to equal the upright and horizontal tubular boilers. The horizontal boiler, on account of its make, requires a much shallower stoke-hole than that necessarily required for the upright tubular, a circumstance greatly in favour of the horizontal boiler. With the exception of the latter, all other descriptions of boilers referred to above have ash-pit doors, which, in connection with the chimney-damper, are used to regulate the draught. The tubular boiler will burn almost anything, from brushwood, stems of trees and roots, cleft and otherwise. Like many other things, young men of intelligence and application learn as much in the "art and

science" of stoking in three years as others lacking these qualifications manage to acquire in twice that length of time.

Stoking does not consist simply in removing clinkers and putting on fresh fuel; on the contrary, great care and judgment on the part of the stoker are necessary in order to maintain the proper degree of heat in pipes and houses, exercising due discretion in the matter of regulating the draught by means of ash-pit doors and the chimney-damper, so as to prevent the temperature in the houses getting too high, or the boiler from boiling over. Where the boiler is large enough to heat four ranges of houses, or is put in to heat two structures in the first instance, with the intention of adding two more in the near future, it requires the exercise of extra watchfulness and care on the part of the stoker to prevent the water boiling over at the supply-cistern or the expansion-pipe occasionally. It is a faulty practice to open the furnace-door to allow the heat to escape therefrom into the stokehole, with a view to preserving a steady heat. The practice carries condemnation with it, and goes to show clearly that more fuel than was necessary was put on the fire, and as a consequence precious heat was wasted. The stoker should, by attention and practice, understand the "music" of the boiler when the water is getting very hot, and shape his actions accordingly. *H. W. W.*

CRINUM CAPENSE.

In the less cold parts of these islands, this fine hardy bulbous plant grows and flowers well if afforded a warm situation, and a little protection in winter. The plant illustrated (fig. 29), of which a photograph was kindly sent by Mr. Goetling, gardener at Lisle House, Bournemouth, was not grown entirely out of doors, but was wintered in a cool shed, and turned out of doors on March 15, and shifted into a large No. 4 pot. During the summer it made vigorous growth, and started seven young bulbs—originally it was a single bulb.

Altogether sixty-one blossoms were formed on seven spikes, truly a grand plant, and very fragrant! It was lifted and put into the conservatory, to shield it from weather, on the 4th of September, and the first bloom opened on the 15th of that month, and the last was cut on November 1. Its total height was exactly 6 feet. The colour of the flower is white, flushed with red. Of this species there are several varieties, all beautiful.

ORCHID NOTES AND GLEANINGS.

A FINE SPECIMEN OF PERISTERIA ELATA.

A CULTURAL note on this plant in the issue of the *Gardeners' Chronicle* for December 23, 1899, served to recall to my memory a fine specimen I saw in bloom in the gardens at Cliveden, last summer. On going through the houses there quite lately, I noted the same plant again, and gained a few particulars of the mode of treatment accorded the specimen which has flowered so regularly for several years past. In August last this plant, now growing in a No. 1 sized pot, produced nine spikes, some six feet or more in height, with 486 blossoms, or an average of fifty-four to a spike. This is probably one of the finest specimens of *Peristeria elata* existing in this country, and it appears to be an advance on Mr. O. Thomas' plant shown at one of the Royal Horticultural Society's meetings in 1898 as regards the number of the flowers. It would be interesting to know how the Frogmore plant bloomed during the past summer. Six years ago the plant at Cliveden was growing in a 9-inch pot, and for the past year or a longer time it has filled

a No. 1 size, and is now finishing up eleven fine growths. The cultural details are simple: The plant occupies the same position, a light one, in a moist plant stove all the year round, and is afforded a plentiful supply of water while growing, and occasionally weak liquid manure made from cow-dung. Less water is required after the growths are made; and plenty of drainage materials is an essential. The compost consists of the fibre of pasture loam only, and peat in the proportion

sum, and *O. luteo-purpureum*, from the crossing of which two species resulted. With all three under examination it is very interesting to note the features of each of the parents in the hybrid. The first thing which presents itself in *O. × mulus* is the distinct Hawthorn-scent of *O. gloriosum*. Then it is seen that its texture is harder, less fleshy and thinner than that of *O. luteo-purpureum*, while the outline of the sepals and petals distinctly indicates *O. gloriosum*, the colours and the



FIG. 29.—CRINUM CAPENSE.

of two of the former to one of the latter, together with a liberal quantity of sharp sand. No sphagnum-moss is used for surfacing, a little loam fibre being preferred. Mr. Bacon, the present head gardener at Cliveden, is justly proud of this fine specimen. *Visitor.*

ODONTOGLOSSUM × MULUS.

It is not often that one has the pleasure to receive flowers of a natural hybrid Orchid, together with flowers of the two reputed parents. Joseph Broome, Esq., Sunny Hill, Llandudno (gr., Mr. A. C. Axtell), however, has sent me flowers of *Odontoglossum × mulus*, and of *O. gloriosum*.

expansion of the front lobe of the lip and its jagged margin tells of *O. luteo-purpureum*. Its inflorescence, too, is much more liable to branch than that of *O. luteo-purpureum*. The most curious result of the crossing is seen in the column, its wings, and in the crest on the lip, which are distinctly intermediate between the two species which in themselves differ widely in those characters. The variety, flowered out of an importation by Mr. Broome, is a very fine and brightly coloured one. The sepals are chestnut-brown, with an irregular yellow bar across each, and a bright yellow tip; the petals are creamy-white at the base, and yellow at the tip, finely blotched with red-brown. Lip

yellow, with a white crest, in front of which is a red-brown blotch. It closely resembles the form illustrated in the *Gardeners' Chronicle*, 1886, N. S., vol. xxv., p. 13. J. O'B.

LÆLIA JONGHEANA.

Many who have plants that have now opened their blooms for the first time will be disappointed with this. It will be called "starry." This is not to be desired where form is a desideratum, but there are points in this *Lælia* which recommend it to those who look for more than temporary bloom. It will prove a useful adjunct to hybridists whereon to work. I would advise everyone to cross every bloom they have with *Sophronitis grandiflora*, or *L. anceps*, or with any large bloom with a well-coloured lip. The dwarf habit of the plant, and its strong constitution, will conduce to its producing a fine race of hybrids. If it were red, as is *Sophronitis*, it would be the greatest possible acquisition. Even as it is, it is most beautiful, and the plants have not yet attained full development. Next year when well grown, the blooms will be broader in all their parts. I have seen many



FIG. 30.—*GALANTHUS NIVALIS* VAR. *SCHARLOKI*.

plants, but not a large proportion of spikes. It may interest some to know the treatment afforded this species at Rosefield. I have some thirty plants capable of blooming, having from six to fifteen pseudo-bulbs, and one to three leads; and nine plants in bud. They were put into pans and placed on the south-side stage of the Cattleya-house close to the glass; they did badly, were transferred to a cool-house, and hung up all the summer. They were brought back to the Cattleya-house in October, and hung up against a glass partition. There will be variations in colour and form, and when the "hololeuca" comes, then the fun will begin, and people will approve of it. De B. Crawshaw, Sevenoaks.

LÆLIA SUPERBIENS.

This stately old species seems to require a favourable and sunny locality in which to produce its fine spikes of large handsome flowers, for in the neighbourhood of town it seldom flowers, though where better situated it flowers regularly. Such is the experience of Joseph Broome, Esq., Sunny Hill, Llandudno (gr., Mr. A. C. Axtell), with whom it flowers well and regularly, and who now sends a good example of it. The flowers have narrow sepals and petals extending about 6 inches from tip to tip, of a bright lilac-rose. The lip is of a dark rose-tint, with a number of large, raised, yellow keels running down the centre.

PLANT NOTES.

GALANTHUS SCHARLOKI.

ODDITIES (if one may be permitted to use the word) are by no means uncommon among Snowdrops, yet few, the writer thinks, are more singular than the form of *Galanthus nivalis*, known as *G. Scharloki* (fig. 30). From the time when it first pierces through the soil, it is easily seen that it is distinct, the divided spathes having an influence even at that early stage, by exposing the segments of the flowers. It is singular to see the little ball-like flowers showing between the spathes. More peculiar still, is the way in which the spathes curve down on each side of the blooms at a later stage. These spathes have been likened to a pair of wings, but they remind the writer more of curved horns. The distinctness of *Galanthus Scharloki* is still further shown by its possessing pale green spots near the tips of the outer segments. From *Galanthus Scharloki* Mr. James Allen has raised several seedlings which are inter-

of his countrymen who are the owners and cultivators of land, and who, by their apathy and want of enterprise, have allowed others from over the seas to invade our markets, and take away our gold—the gold which, under happier auspices, would have found its way into the pockets of our sadly depleted and impoverished rural population. This is not written in any carping spirit of envy as regards those who find it to their advantage to send us their surplus supplies to fill the void created by our apathy at home; rather are we grateful to them. Indeed, there are many kinds of second-rate exotic fruits which we cannot grow out-of-doors in this country, such as Oranges, Bananas, Guavas, Indian Figs, &c., which are always a welcome addition to our dessert. But after all, what are these in importance and value as compared with the hardy fruits we can grow at our own doors. Take the homely British Apple, for instance: for home and general consumption, it is of a thousand times more value as an article of food for our people than all the foreign fruit put together; and yet we import far more of this fruit than we grow ourselves. Why is this? The question, I fear, is easier asked than answered; but one emphatic remark can be made, and one that cannot be gainsaid, and that is, that the climate and soil of many counties in Great Britain and Ireland are as well—aye, better—suited for the growth of this fruit than any other part of the known globe. It is not, then, the fault of the first essential; neither can we say that the culture of the Apple is not properly understood by the majority of British gardeners; the reason must be found in some other direction.

Our country is rich in iron and coal, and a host of other manufacturing and engrossing pursuits, that a minor industry like gardening has been lost sight of by the rich, the enterprising and energetic part of our population. It is a fact also that years ago fruit among the working population was scarcely ever thought of as an article of food, but it is very different now, especially among those in towns, where fruit consumption has enormously increased. What will the consumption be, say, twenty or thirty years hence at the present rate of increase in the population? I have no doubt in my own mind that our friends abroad are taking note of this, and making preparations accordingly, and it will not be amiss to ask the question—what are we doing in England, Ireland, and Scotland in this direction?

Thanks, in a great measure, to the well-maintained and energetic action, and the now far-reaching influence of the Royal Horticultural Society, by its experiments and exhibitions, and by the work of its *Journal*, and to the enormous influence directed this way by our horticultural press, there are indications on many hands that we are at last waking up to our responsibilities and duties in this matter.

I have no means of knowing of the increase of acreage placed under fruit-trees during the past ten years, but I have observed that in the district between Windsor and London, on land adjacent both to the Great Western and the London & South Western lines, great tracts of land have been planted with fruit-trees, mostly Apples, and all appear to do well. These are mostly planted on previously cultivated land, and are chiefly half-standards and bushes. Let us hope the owners of these plantations will steer clear of the common and fatal error fallen into almost invariably by amateurs and farmers in dealing with their orchards and fruit-trees generally—the error of overcrowding. This is painfully apparent in our established and semi-established orchards all over the country.

Broadly speaking, in launching out on the business of Apple-cultivation on a large scale for profit, there are three well-defined ways of proceeding namely, the usual orchard of standard trees on grass; isolated rows, well separated, of pyramid trees on arable land; and the comparatively thick planting of bush or half-standard trees by the acre,

esting as studies of the working of heredity, although none are exactly like the parent. One or two have divided spathes, and some have green markings on the outside of the outer segments. None of the four or five I have here are as pretty as the parent—for it is pretty, despite its uncommon features. We owe the discovery of this interesting little Snowdrop to Herr Julius Scharlok, who found it in the valley of the Nahe, a tributary of the Rhine; and Professor Caspary named it in honour of its discoverer in 1868. Unlike some Snowdrops which break away from the normal form, *G. Scharloki* is a capital doer. S. Arnott, Carsethorn-by Dumfries, N.B.

THE APPLE.

WHEN last autumn I had the pleasure of listening to Mr. George Monro's lecture at the Drill Hall on the great expansion of the fruit industry, and of the enormous increase in the consumption of fruit which has taken place throughout this country during the last twenty years, I must admit that the pleasure was mingled with a thought of sadness at the admitted fact that the increased supplies in nearly every instance had been supplied by other countries than our own. I could not but feel that Mr. Monro had unconsciously formulated a damaging and true indictment against those

also on cultivated land. Each plan has its advocates, and no doubt each one has some particular merits of its own, more especially in its adaptation to certain conditions; but given that, the sole object is a matter of profit, then there is no doubt that the orchard on grass is out of the running altogether, especially for the first twenty years.

Where the farm or market-garden is of moderate extent, or larger, there is no doubt, in my opinion, that the planting of the trees in rows, at wide distances apart, is far and away the best system to pursue. Its advantages are many. In the first place the trees have the full benefit of all the light and sunshine during the year, and also all the rain that falls, as well as the advantage of not having the roots of neighbouring trees contending with them as to which tree shall have the lion's share of the soil's fertility. I need scarcely say that these advantages are the prime essentials to the growing of a perfect, symmetrical, fruitful tree—a tree capable of bearing a crop of first quality fruit from base to summit. This cannot be said of a tree grown in a thicket amongst others: from such a tree second-quality fruit only can be expected, and that chiefly from the topmost branches. Another advantage I claim for this system is the easy facilities afforded for pruning, collecting the fruit, and, if necessary, spraying the trees. Yet another advantage, and one not to be despised, is the shelter it affords to other crops of lower growth, which may be planted between, whether of bush-fruits, vegetables, or flowers for sale. *Owen Thomas.*

IRELAND.

THE ROYAL HORTICULTURAL SOCIETY OF IRELAND.

THE schedule of the above society has been issued, which makes it their seventieth: the list of prizes and awards for the four forthcoming shows are similar to those of previous years, with the single addition of a Silver Challenge Cup of the value of £10 sterling, which has been presented by Messrs. West & Son, Collopy Green. The council have agreed to make a new class for Roses, and to give the cup as the premier prize with money added by a few friends; and the stand to comprise Teas and Noisettes, and consist of eighteen blooms in at the least twelve distinct varieties, and not more than two of any variety. The balance-sheet shows the society to have touched low water, as the amount of their account is very small. It is to be hoped that by the end of the season the society will be brought into a more flourishing financial condition. The secretary of the society is Mr. W. H. Hillyard, 61, Dawson Street, Dublin.

TOBACCO CULTURE IN IRELAND.

In connection with the experimental farm which is attached to the Donaghpatrick Agricultural Co-operative Society, it has been shown that the climate of Ireland is suited to the cultivation of tobacco. Their efforts are not, however, entirely successful, owing to the lack of expert advice in the matter of harvesting the crop, which includes the drying and curing of the same prior to marketing; the only advice they had has been volunteered by a friend from America, who gave the promoters some hints about saving the crop. The sites upon which the test was carried out were loams of two different qualities, ordinary clayey loam, and a deep clayey loam of the best quality. The variety grown in both instances was English Virginian, and was supplied by Messrs. J. Carter & Co.

The methods of cultivating the plants were similar to those adopted by Messrs. J. Carter & Co., at Bromley, in Kent, some twelve years ago. The tobacco, when cured, was manufactured by Messrs. Goodbody & Son, and when finished it weighed, in the case of No. 1, 14 lb. 12 oz., and in that of No. 2, 20 lb. 15 oz., the average return being for

35 lb. of leaf 35 lb. of tobacco, without the addition of any flavouring materials. Messrs. Goodbody referred the promoters to send a sample of the leaves to Messrs. John Ross & Co., Liverpool, and gave the following as their opinion:—"It seems to show up fairly well in quality, and smokes satisfactorily; of course, a great deal will depend upon the way in which this tobacco is cured, whether it will be serviceable or not."

The means of 1899 was not suitable for its proper cultivation, as the wet autumn was unfavourable to the ripening of the crop. The cost of production, however, will hamper cultivators, as they lack one essential feature, the absence of sun-heat for drying. This will entail the use of fire-heat, which will be a serious item when large tracts are under cultivation; the cost of manufacturing has been reckoned at 4d. per lb., and the excessive revenue duty is 2s. 6d. per lb. If its cultivation is to be helped, the fiscal policy must be modified, as the excise authorities would simply kill the industry, and the return, after all expenses were deducted, would leave a small margin of profit. One lesson gleaned from their labours is, that the tobacco crop does not exhaust the soil more than Turnips, which is a great point in its favour.

The promoters intend trying this year more varieties, and to produce a higher class of tobacco; and it would be very desirable if the experiment could be tried along the west coast of Ireland, not exactly the seaboard, but some distance inland, the climate being more suitable than that of central Ireland, as for example, co. Meath, where the above experiments were carried out. An account of the experiment is published by Mr. Nugent J. Everard, President of the Donaghpatrick Agricultural Co-operative Society, Ranelstown, Navan, and from which the above extracts were taken. *A. O'Neill.*

NOTES FOR NOVICES.

THE LEAF.—It is not altogether the best season in the year to make a study of leaves; yet the gardener-student will, of course, not be at a loss for material at any time. Before us lie Tulip-leaves, Lily of the Valley leaves, and Violet-leaves; any one of them will serve our present purpose. We are not going to descant upon their general appearance, nor upon the differences in form between them. What we want to emphasise now is that all these leaves, in fact, with few exceptions, all leaves are substantially uniform in structure. There is the most astonishing diversity of outward form, but the internal structure is, in its main features, identical, however much it may differ in detail. This is not to be wondered at, as the duty of the leaf and the work it does in the plant are correspondingly uniform.

The main features just alluded to are the skin (or epiderm) which covers the whole surface of the leaf; with the point of a penknife and a little patience, the skin of a Tulip-leaf can easily be picked off. If the fragment be held so that the light streams through it, and it be looked at with a pocket-lens, it will be seen to be translucent, colourless, and made up of cells and nothing but cells—membranous bags more or less flattened, and containing no green matter (chlorophyll). With a good pocket-lens the skin may be seen to be perforated with numerous pores. These are, of course, more readily seen under the microscope, but it is well in all cases to see at first as much as possible with a simple pocket-lens, and when you can see no more with it, then and not till then avail yourselves of the compound microscope. These pores are the breathing-pores or "stomata," through which pass in either direction watery vapours and fluid. The skin of the leaf (barring the breathing pores, is mostly impervious to water, and its main office is the protection of the internal structure. Some say it does not absorb water as such at all, and indeed in some cases it is so coated with wax, felted hairs, or other impervious material, that it cannot absorb

water; neither can it, save through the pores, allow of the passage of water from the inside. The pores, it should be said, are capable of closing and opening according to circumstances.

The skin of the leaf is therefore a protective garment, and it regulates, chiefly, or exclusively, by means of the pores, the ingress or egress of watery vapour, and the constituents of atmospheric air.

Beneath the skin, easily seen on removal of a small fragment, is the pulp of the leaf, consisting of cells whose protoplasm is mixed with green substance called chlorophyll.

Speaking generally, the more complete the exposure to sunlight the more abundant and denser the green substance. In the Tulip the green substance is pretty evenly diffused throughout the leaf, because one surface is nearly, if not quite, as much exposed as the other; but in the Violet, or any plant in which there is a marked upper and an equally marked lower surface, then the green substance is densest above and thinnest beneath. As a consequence of this, the under surface of most leaves is of a paler colour than the upper.

This green pulp is the most important part of the leaf, considered as a food manufactory. Under the influence of sunlight and sufficient heat and moisture the leaf-factory sets to work to form green substance and ferments out of the protoplasm, starch and sugar out of the green matter. The chemical processes are complex, and not fully understood, but the result is that by the agency of a ferment formed in the protoplasm, the solid, insoluble starch is converted into liquid sugar or some analogous compound. This forms the food which may be transferred from cell to cell, till it reaches the growing points, where it is utilised in the construction of new cells, or, if for the moment it is not all wanted, it may be conveyed to some place of storage, such as the bark, the seed, or the bulbs, or tubers as in the Potato; the liquid matter being again converted, for convenience of storage, into solid matter. The pulp of the leaf then is of the utmost moment to the plant, and to have it in good working order is or should be a principal aim of the gardener. This may be accomplished by exposure to sun-light by an adequate supply of water, cleanliness to remove obstruction from the leaf, and an adequate temperature according to the nature of the particular plant.

Traversing the pulp of the leaf in various directions, from base to tip as in the Tulip, or broken up into a network as in the Violet, are the so-called "veins" of the leaf. The term is as bad and misleading as it can well be, but it is in universal use, and it is not quite so deterrent as the "fibro-vascular system," or the "libero-ligneous bundles." These fibrous bundles or threads consist partly of long wood-cells, which serve as a support to the pulp of the leaf, just as the bones of a bat's wing serve to support that membranous expansion. Besides acting as a mechanical support, these bundles supply conduits for the passage of fluid from place to place. The part of conduit is enacted by certain "vessels," open tubes, not thickened by woody deposit in the interior as in the true wood-cells.

It is no part of our present object to give fuller details of leaf-structure. That may come at a later stage. All that we wish to emphasise in this place is that the leaf is covered with a protective skin, with which is associated a breathing apparatus, that the green pulp is the active manufactory where the most important part of the work of the leaf in supplying food and favouring growth is carried on, and that the "veins" act as mechanical supports, whilst the associated vessels act as conduits. Speaking broadly, all leaves have these three elements in greater or less abundance, according to circumstances of climate, soil, exposure, &c.

The gardener, if he has the growth of a specimen plant in view, must consider the requirements of all three elements; but if he is growing a Cabbage, say, for the pulp of the leaf, he adapts

his practice accordingly, and devotes his attention principally to supplying the conditions favourable to rapid cell-growth.

If it is the fibre he specially wants he acts accordingly, by withholding moisture and retarding growth, and doing what he can to check the cellular and promote the growth of the fibrous tissues. *S. Retzsch*.

A CONIFER DISEASE.

In 1888, Professor Tubeuf described a disease attacking the young shoots towards the summit of seedlings, also the lower twigs of older plants of the

and has shown by artificial infection with its conidia that the Silver Fir, Spruce, and Larch, are also susceptible to the disease. He has also observed *Juniperus communis* with its young shoots killed, and sclerotia resembling those of *B. Douglasii* present.

In this country a considerable number of seedling *Wellingtonias* have been killed, the symptoms being in all respects identical with those indicated by Tubeuf (fig. 31). The fungus, however, does not appear to be a new species as supposed by Tubeuf, but our old and well-known enemy, *Sclerotinia Fuckeliana*, the conidial form of which is known as *Botrytis cinerea*. Behrens has arrived at a similar

Preventive measures.—When the disease once appears, its spread is very rapid, especially during damp, cloudy weather in the spring, owing to the rapid diffusion of conidia which attack the young tender leaves, the mycelium passing from thence into the shoots. Spraying with dilute Bordeaux Mixture, or perhaps better, with a solution known as "Violet-mixture" should be at once resorted to as a check to the spread of the pest; all plants in the vicinity both healthy and diseased, should be well sprayed, using a nozzle that gives a very fine spray, so that the material remains on the parts sprayed.

Past experience shows that plants once attacked invariably die, hence all such should be promptly removed and burned, as pruning the diseased parts is out of question in the case of most Conifers, especially where the lead is attacked, and this portion is usually the first to suffer. The ground should also be well drenched with the spraying mixture, for which purpose a stronger solution may be used with advantage, otherwise the fallen diseased leaves will continue to furnish a crop of conidia.

Diseased shoots and leaves after being kept in a dry box for four months, yielded a copious crop of conidia after being moistened and kept in a damp place for ten days. This experiment proves the necessity of removing from the ground all fallen leaves and shoots, as sclerotia form abundantly in such dead portions of the plant.

"Violet-mixture," which is quite as efficacious as Bordeaux Mixture, adheres to foliage better than the last-named solution, and does not leave a white deposit on the plants sprayed.

Copper sulphate	...	...	...	2 lb.
Copper carbonate	...	...	...	3 lb.
Water	...	...	...	18 galls.
Potash	...	...	...	3 oz.

All the ingredients are soluble in cold water. *Geo. Massee.*



FIG. 31.—SEQUOIA GIGANTEA ATTACKED BY BOTRYTIS CINEREA.

- 1.—Terminal shoot of *Sequoia gigantea* attacked by *Botrytis cinerea*. Nat. size.
- 2.—A fruiting-branch of the *Botrytis*. $\times 400$.
- 3.—Portion of a *Sequoia* branch with sclerotia. $\times 10$.
- 4.—A single sclerotium imbedded in the bark of a *Sequoia* branch, producing the *Botrytis*-form of fruit. $\times 80$.

Douglas Fir. The disease is characterised by the withering and curling up of the shoots, which soon become denuded of leaves, and eventually the entire plant dies.

When the first symptoms of disease are observed, the portions attacked are seen to be covered with a dense outgrowth of grey mould, and after the twigs are dead numerous small black sclerotia, about the size of a pin's head, may be found embedded in the bark, and also in the tissue of diseased, fallen leaves.

Tubeuf named the parasite *Botrytis Douglasii*,

conclusion to myself as to the identity of the fungus.

Artificial infection with conidia proved that the Scots Fir is also susceptible to the disease, and perhaps the same is true of most Conifers; plants belonging to other groups, as Vines, Cherries, &c., have also been recorded as having been artificially inoculated. On the whole, coniferous seedlings appear to suffer most, the disease often spreading rapidly, and doing much mischief if not promptly checked. The disease has also been recorded as occurring in the United States.

FORESTRY.

PARK CLUMPS OF TREES.

To render a park clump really attractive, and in harmony with the prevailing surroundings of ordinary park scenery in the Midlands or south of England, it must have a certain amount of resemblance to the clumps or groups found in natural forest scenery, for, after all, a park in its honest form is only an open forest deprived of its rougher growths of brushwood and thicket. Smooth stretches of turf dotted over with well-balanced "specimen" trees, while pleasing enough in a way, and appropriate enough in the vicinity of the mansion or the pleasure-ground, cannot be considered as elements of ideal park scenery unless relieved by parts more densely timbered, and of a wilder growth, which give the necessary touch of Nature to the scene before us, and which carry out the idea of transition from the artificially kept or dressed grounds on the one hand, and the natural forest, heath, or chase, on the other. The clump is the connecting link between the single tree, and the larger area which takes on this forest character more closely, and in small parks may have to take the place of the latter entirely, owing to want of space, or considerations connected with the view. Density, and a perfectly regular distribution of the trees (both of which have much the same effect), are objectionable features in such clumps, for they fail to conform to that broken and constantly varying character which is the chief beauty of park timber. The most picturesque types of the latter are found in two or three trees standing so close together as to form but one crown between them, stunted or pollarded trees of great girth, trees which divide into two or three stems close to the ground, or stems with aged thorns or crabs springing from their bases—in short, anything due to accidental causes, from which years of subsequent growth have removed the abruptness or disfigurement without restoring to a normal condition.

How, then, can similar results be obtained in clumps formed by artificial means? Certainly not in the manner described and condemned above, as hundreds of instances can be found to prove. If a natural effect is really desired, these clumps must be raised in somewhat the same way as Nature produces the results described, i.e., by a careless disregard of all formality and stereotyped methods of planting. A patch of thorns or brambles establishes itself, and under its protection a few seedling Oak, Ash, or Beech, manage to reach a few feet in height. In some instances, the whole group stands on a yard or two of ground, in others a greater distance separates them, and according to the space at their disposal, so is the shape of the crown or crowns determined. A. C. F.

(To be continued.)

THE WEEK'S WORK.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener, Stoke Edith Park, Hereford.

Raspberry Plantations.—The time has arrived when the canes may be finally thinned, tipped, and tied either to stakes or wire trellises. The best results are obtained when the canes are fastened to trellises, as each cane then stands apart, and yields fruit from top to bottom. A great crop of fruit may be gathered when the canes are tied in fives or sixes, bending these over and fastening the canes from two stools to one stake. If the market method of growing Raspberries be adopted, no stakes are required, as the rule is simply to shorten the canes to 4 feet, and leave four or five of the best on each stool. Some growers put a strand of raffia or string round the canes near the tops, so as to hold them together out of the way when horse-labour is employed to work the ground between the rows. Where stakes are used, the canes should be secured to them by means of tarred-twine or Osiers, but, in the case of a trellis, raffia or common bast is needed. If not already done, the canes of autumn-fruiting varieties should be cut down close to the ground, the fruits coming on the current year's growth. Raspberries succeed best on deeply-stirred and rather heavy soil, and as this is a crop that generally remains on the same piece of ground for a number of years, new plots should be heavily manured and deeply dug. It is not too late to plant this month, providing the preparation of the plot is undertaken forthwith. Superlative is a sterling variety to plant. Another is the new yellow-fruited variety, Guinea. The best autumn-fruiters are October Red and Belle de Fontenay. Semper Fidelis—very acid—and Northumberland Fillbasket are good either for field or garden. Newly-planted canes should always be cut down to within 3 inches of the soil in all cases before or soon after planting.

Tree-Protection.—The frosty weather has given the Apricots a needful check, for the buds were swelling fast before it came. When the flower-buds are forward in this month as they are this year, there is a danger that hard frosts will destroy a great number. If the wall is furnished with copings of glass, or of boards, and these are now in position, fish-netting may be let fall in double or treble thicknesses from the copings, and kept off from the wall by means of poles whenever danger to the flowers is feared. With regard to Peaches, Plums, &c., there is full time to make provision for their protection.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen.

Dendrobium Wardianum, D. nobile, &c.—Various Dendrobiums are imported at this season, and those whose stock needs to be replenished would do well to secure a fresh supply as early in the season as possible, so that the whole of the growing season may be utilised for their establishment. D. Wardianum is a notoriously short-lived species under cultivation, and any obtained now may be put into pans at once, just large enough to hold the base, filling in with crocks to near the rim, surfacing with peat and sphagnum-moss in equal proportions. Secure the old bulbs to the wires, so

that they will not sway and loosen the base, but when the young growths develop, allow these to droop as they will. Suspend the pans in a light structure where a temperature of 55° to 65° is maintained, and until root action has commenced afford only sufficient water to keep alive the sphagnum-moss. The above remarks apply equally to D. crassinode, D. nobile, D. Findleyanum, D. aureum, D. lituiflorum, D. Devonianum, D. primulinum, and D. crepidatum, which, however, require stove-treatment whilst growing.

Thunias.—At this season repotting should be performed as soon as the roots appear, and the young growths have made an inch of growth. The potting compost may consist of two parts fibrous-peat, and one of fibrous loam and chopped sphagnum-moss, a small portion of pulverised cow-dung, together with a good sprinkling of very small crocks and sand. Let all old material and roots be removed to within 2 inches of the base of each pseudo-bulb; having done this, select 5-inch pots for a strong, single pseudo-bulb, or a 7-inch one for three or more pseudo-bulbs, according to their strength. Place a large crock over the hole at the bottom of the pot, insert a stake in the centre, and more crocks, nearly filling the pot, and over these place a layer of rough sphagnum-moss, and afterwards the bulbs, tying these to the stake. The compost should then be filled in to nearly the level of the rim, and over the base of the new growth. The material should be made moderately firm, well incorporated, and the growths placed so as to look outwardly from the centre. In order not to excite the plants unduly, place them in a light, not over-warm position, say the warm end of a Cattleya-house; afford a slight spraying occasionally, especially on bright mornings, and increase the amount of moisture as the season advances. When the roots reach the sides of the pots, water in good quantity may be applied whenever there are appearances of dryness.

Pleione humilis.—As this species flowers till this month, repotting may be done when the flowers fade. Other species are repotted in November. If the compost is well preserved, and other circumstances are favourable, nothing need be done before growth has made considerable progress, when a top-dressing of chopped moss and sand may be afforded. Those requiring removal from the pots should be taken out in clumps, and not separately, as with the other species, the decayed materials and dead roots being picked off. Let the clumps be inserted in pans three-parts filled with clean crocks, and above these place a compost consisting of Orchid-peat two parts, fibrous-loam one part, and chopped moss one part; sufficient finely-broken crocks and sand being used as will give free outlet for water. The plants when repotted should be stood in the Masdevallia-house near the roof. Afford water sparingly through a fine rose water-can, and after growth has begun to progress freely, a more liberal supply will be needed.

Pleione lagenaria and Wallichiana growing in the same house are making steady progress, but these need only as much water as will keep the compost moist.

P. maculata growing in the Cattleya-house should be afforded water more liberally, it being in a more advanced stage, but saturation of the materials should be avoided, or the tips of the leaves will turn of a brown colour.

General remarks.—Extremes of outside temperature occur at this season, and damping-down and applying water call for much care on the part of the cultivator, or those in charge of the plants; much evaporation of moisture occurs when strong fire-heat is used at night, still, no more water than is necessary should be thrown about the floor in the afternoon. Air may be admitted by the ventilators near the floor whenever the conditions are favourable, closing them early in the afternoon. Plants in a dormant condition should not be excited by exposure to high temperatures and a saturated atmosphere.

PLANTS UNDER GLASS.

By T. EDWARDS, Foreman, Royal Plant Gardens, Frogmore.

Conservatory and Greenhouse.—There being at this season an abundance of plants available to keep these houses bright, the first opportunity should be taken to remove those which have got past their best, or are no longer needed. Re-arrange

the plants occasionally, and where convenient, group a family—say Narcissi in variety—in one mass. Many plants are far more effective in a group than when mixed with others, and a thorough change can thus be easily made, which is always refreshing to the eye. During cold weather, ventilation will require careful attention, the fires being stopped, or the heat diverted from the pipes, if the day is likely to be sunny. The application of water should be made early in the forenoon, remembering that a rather dry atmosphere is favourable to the endurance of the flowers. Solanums may, when removed, be cut over, and then stood in pits out of the reach of frost, planting them out later on. Libonias only require the shoots to be shortened, and the plants out in proper shape: place in a cool-house, and repot them later on. Let the faded flowers and seed-vessels of Azaleas be picked off, and the plants encouraged to grow by placing them in a house having a temperature of 55° to 60° (rising to 70° with sun-heat), freely syringing the heads in the morning, and early in the afternoon.

Forcing-house.—Continue to place bulbs, Azaleas, Lilac, Deutzias, &c., in heat, and remove to cooler quarters all subjects as soon as the flower-buds begin to show colour. Hippeastrum bulbs may now be shaken out of the exhausted soil, and repotted into 4½, 5, and 6-inch pots, according to the size of the bulbs. Hippeastrums require to be potted in a free, open compost, with plenty of sand added, and to be plunged in a gentle bottom-heat, such as that afforded by tanner's bark, Oak-leaves, &c.

Cyclamens.—The seedlings raised in the autumn of last year and now standing in pans and boxes should be potted into 60's, and encouraged to make slow, steady progress, by affording a temperature of 55° to 60°, and keeping them near to the glass, so that no drawing of the leaf-stalks occurs.

Imantophyllums (Clivias).—The flowers will be improved in colour if the plants are afforded liquid manure liberally. When in flower, these plants may be safely placed in the cool conservatory.

Pelargoniums should now be placed in their flowering-pots, and be freely aired when the weather is mild.

Fuchsias may be re-potted as may be found necessary, and the shoots stopped.

Roses in Pots.—The plants which are intended to flower in the month of May, should now be pruned and started, assuming that the potting was performed in the autumn, and the pots have been plunged in coal-ashes. Let the pots be washed, and the surface stirred with a pointed stick. A temperature of 50° to 55° will suit the plant for the present.

THE FLOWER GARDEN.

By J. BENDOW, Gardener to the Earl of Rochester, Abbotsbury Castle, Dorset.

Coniferous Trees.—Almost every species of Conifer which may have lost the point of the stem from any cause may have the symmetry of the tree restored by selecting a well placed lateral shoot, and fixing it to an upright stick fastened to the stem with twine over a few caoutchouc bands. The leader being fixed in its place, vigorous side growths about the apex of the tree should be cut back slightly. Conifers of dense growth, as Juniper, Cupressus, and Biota are frequently weighed down with snow, in which event the branches should be forthwith tied back with strong tarred cord, thus avoiding the loss of branches not easily replaced. Young trees may now be easily staked, the ground having become moistened by rain and snow. The use of strong Oak-quartering with the flat sides to the tree, or of three Ash-stakes joined at the top, are useful modes of staking trees. Care must be exercised, however, in tying the trees so as not to allow the bark to be injured by friction.

Propagation and Culture of Yuccas.—Varieties of Y. filamentosa and Y. gloriosa are among the most useful that may be planted in the sub-tropical garden, and if given a little care during and immediately following frost, they will prove hardy and long-lived. Yuccas are effective when used as "dot" plants in large beds on the lawn, or when planted by the side of paths adjacent to the mansion. Grouped together on raised mounds, with Daffodils, Snowdrops, Chionodoxas, &c., growing under them, or planted here and there on the

sunny side of shrubberies where the bend or belt of shrubs forms a bold front, they will be admired. Yuccas are not very particular as to soil. They succeed in a sandy loam, enriched with thoroughly-rotted manure, and made porous by the addition of a good proportion of old mortar-rubble. Propagation can be easily effected from the root-stock, by taking up now any very old roots of plants that are broken or decayed. When such roots are examined, there will be found clustered about them many buds or points similar to those of a Jerusalem Artichoke. Each of these should be so severed with a sharp knife as to secure to the growth a good heel. Pot them separately into 5-inch or 6-inch pots, and use a compost of sandy loam and leaf soil. Manure at this stage might cause decay. Plunge them closely together in a hotbed of leaves, and give them a thorough watering, which will be sufficient till growth has commenced. Spray the leaves occasionally on bright days. It is necessary occasionally to remove aged plants owing to decay or other cause, and in such cases the large growths may be treated as cuttings. They should be severed with a saw at a point where the growth is sound, immediately below the leaves. At Abbotbury this method of increasing the stock is in every respect successful. The operation should not be commenced until May or June. A bed or border in full sunshine should be prepared in the meantime for the cuttings. Raise the soil above the level, and use a compost of two parts leaf soil, adding one part loam and one part grit. Make this firm by treading it. Plant the cuttings firmly by using a spade, and placing them against the side of a trench, subsequently treading the soil in—or make a large hole with a crow-bar; in either case insert the cuttings up to the leaves or collar, and give them a soaking of water. They will make roots during the first year, and may be afterwards planted in permanent positions. During such severe weather as the present, even though the plants may have been tied up, or given what protection is necessary by means of bracken or similar material, a close watch must be maintained. Directly a thaw occurs, the tissues of the stems become relaxed, and the plants may collapse through being top-heavy, if not well supported with stakes and props. Mats may be used to prevent a too rapid thawing of the stems. Experience gained a few years ago during a spell of 20° of frost, proved that when the stems, after bending over to the ground, were replaced and supported, no injury resulted, but otherwise the plants would have been disfigured, or broken off entirely.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Rhubarb.—Every third year a part of the stock of roots should be re-planted; and if it be deemed advisable, the position of the bed should be altered. It is well to have at the least some part of the stock in the full sunshine. Rhubarb may be grown in the same position for several years, providing the soil is of good depth. For several years I have adopted the following plan, and found it to answer. A portion of a bed is lifted yearly for forcing, and the ground is manured and trenched, and the surface left in a rough state till the present month. I then lift and divide a number of strong crowns, plant the pieces each with a bud at 5 feet apart in ground that has been trenched, and cover the entire surface with a 3-inch layer of spent Mushroom-bed dung. The Rhubarb plant suffers if the stalks be pulled too severely, so that it is necessary to plant sufficient roots to yield a fair supply without having to be severe on the plants.

Chicory.—As the supply of Endive and other saladings becomes short, Chicory will fill the gap between the late and the early-sown Lettuces. The roots of Chicory should be lifted, and the tops trimmed off to within an inch of the crown, and the roots placed in light soil in boxes or pots in a Mushroom-house, or in pits from which all light is excluded and there is a warmth of 60°. Not many roots should be forced at one time, the leaves becoming coarse and tough if left to grow to any great length. If the young leaves are not cut too close to the crowns, a second and more tender crop may sometimes be obtained from forced roots. The common and the large-rooted are good, useful varieties, but the Witloof has the largest heads.

Onions (autumn-sown).—Larger bulbs and a more even crop are produced from seed sown in beds or

pits, and transplanted into a plot of ground which has been well trenched and manured, than when sown in the open ground and thinned afterwards. Onion-plants in pits and frames should not be odded, so that when weather is sufficiently mild they may be planted outside without fear of a check. The lines of Onions in the open always require the soil to be made firm by trampling on either side carefully, and some soot spread over the land in order to prevent the worms from drawing down the leaves.

Spinach.—The prickly-seeded variety has withstood the winter well so far, and as an aid to growth weeds should be kept under, and guano, sulphate of ammonia, or any other fertiliser, sprinkled between the rows, and lightly hoed or forked into the soil. In the spring sow seeds of the Victoria Improved round-leaved Spinach on land in a warm site.

Turnips.—Seeds of Carter's Early Forcing (in shape like a Mammoth Radish), an excellent variety, and Early Milan, should now be sown in pits on mild bottom-heat, the bed consisting of light soil, compacted by a light treading, or by being patted with the spade. Sow in rows 9 in. apart, and during the continuance of frosty weather, cover the glass with mats and litter, air being freely afforded in mild weather, after the seeds are germinated. Never let the plants flag for lack of water.

FRUITS UNDER GLASS.

By J. ROBERTS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Tomatoes.—Where a light house occupying a sunny position is at the command of the gardener, the first batch may now be planted in boxes and brought as near to the glass as may be convenient. Boxes having a width and depth of 10 inches, and 3 or 4 feet in length, are convenient for the purpose. To fill them, employ good fibry loam and bone-meal, with the addition of a little burnt garden refuse. Select sturdy plants that have been grown under cool conditions from late autumn-sown plants, and place them 1 foot apart in the boxes, and the same distance from the glass. Keep a steady temperature of 60°, and a rather dry atmosphere, and afford free ventilation in mild weather. Any plants raised in the autumn from seed, and which are now in flower or fruit, may be shifted into pots, stopped at the fourth truss, and pushed forward for an early supply.

Vines.—Late Vines from which the fruit was cleared, and the Vines pruned in December, are in a fit condition for starting. Any renovating should have been completed at pruning-time, and nothing should now remain but to keep the borders steadily moist. An early start is of great advantage to late Grapes in affording a long season of growth, and the time to ripen the fruit in early autumn under favourable conditions; and the expenditure of a little extra outlay for fuel necessary for an early start is well repaid later on.

Pot-Vines.—The early Vines now rooting freely will require more liberal applications of water, and the plants with rapidly-swelling fruit will be benefited by clear liquid manure being applied alternately with clear water. When a good bed of coarse material, consisting of fibry loam and dung has been made, in which the roots may extend through the bottoms of the pots, this should be kept in a healthy, moist condition. The temperature may be raised to 65° at night and 75° by day, and advantage taken of sunny days to maintain a good degree of heat for as long a period as possible.

Second Early Vinerias.—Let the Vines be relieved of superfluous bunches, sufficient being left on the Vines to admit of a slight reduction after the fruit is set. Keep a night temperature of 65° during the flowering period, and a few degrees higher during the day. A dryish atmosphere and free ventilation should be afforded during the early part of the day, in order to have the pollen in a dry condition by midday, when a gentle tap on the rod or lateral will set it free in clouds. This is sufficient to ensure a perfect set, except in cases where the stigma gets covered with a globule of moisture. Where an examination reveals this condition, the bunches should be sharply tapped, following up the tapping directly afterwards by an application of pollen from

some free-setting variety. Thinning should be commenced as soon as possible after the pollen is exhausted. The berries which are best set always swell to the largest size, and are easily distinguished in the earliest stage by having strong foot-stalks. In thinning bunches of Grapes, a bold hand is very desirable, and the work should be carried out at one operation—nothing exhausting Vines more than leaving double the quantity of berries required in a bunch, which will have to be removed after the stoning period is passed. After thinning, every care must be taken to keep the foliage in perfect health, and any bare spaces on the trellis should be filled-in with young laterals which carry no bunches. Careful ventilation will be necessary to prevent cold currents of air injuring the tender skins of the berries. Avoid an excess of atmospheric moisture, as it tends to produce foliage deficient in substance; give it most freely during bright sunny weather.

THE APIARY.

By EXPERT.

Condition of Bees.—A great deal of unnecessary harm is done at this season of the year by anxious bee-keepers disturbing their bees. It does no good, but, on the contrary, it does much harm. If you are sure they have not sufficient food, place candy cake on the top bars, but do so very quietly and quickly, so that the bees are not disturbed. If this is neatly done, all will be well, but to cause the bees to come out in cold weather means loss of time, and this is sure to be shown by the stocks being weak in the spring; and by the time they have built themselves up, the honey flow is over. All hives should be examined once a week, to ascertain if the roofs are watertight (of course, iron roofs would not need it at all), to remove damp cloths and afford fresh ones. The bee-master will, after he has wrapped up his bees, place on the roof several layers of newspaper, which form an excellent covering, particularly if he have an additional cover of waterproof sheeting, which can be obtained for a few pence from any waterproof maker.

Supers for the Spring.—The present is a good time to get in readiness all supers, &c., for spring use, scrubbing them with boiling-water and soda. Hives should also be got in readiness for swarms, not leaving the work till the hives are wanted.

Honey.—All sections that are not sold should be examined, and all "weeping" sections carefully cleaned, or good money will be lost by the honey running over them; and, lastly, all sections should be placed on the market perfectly dry.

VARIORUM.

THE VINE IN URUGUAY.—From a recent report by the Uruguayan Bureau of Agriculture, we learn that in the Caralones department, in 1896-97, there were 230,200 American Vines in nurseries, and 617,800 at the end of August last. The number of Vines transplanted and growing were, for 1896-97, some 149,000, and for the year ending in August last 196,334. The amount of Grapes produced in the department increased last year to 383,530 kilogrammes—showing that the pest of the phylloxera had actually increased the production, owing to the restoration of vineyards and the augmented acreage devoted to their culture. In the department of Monte Video the plants in nurseries, in 1896-97, were 1,288,800 of the American variety, and 2,826,100 in 1899. The Vines transplanted in the former period were 262,900, and in the latter term 104,300. The smallness of the latter figure, compared with the former, is due to grafting—there having been 12,700 Vines grafted in the nurseries, and 379,782 in the vineyards. The production of Grapes in 1896-97 was 938,400 kilogrammes; for last year the production was 1,481,740 kilogrammes. It will thus be seen that the joint vineyards have improved in production, notwithstanding the plague of the vine-louse, and this improvement is due to restoration of Vines and increase in number of vineyards.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

THURSDAY, FEB. 22 { Annual meeting of the Kew Guild
in the Garden Library, Kew, at
8 P.M.

SALES.

MONDAY, FEB. 19.—Fruit Trees, Palms, Roses, Hardy Perennials, &c., at Frotheroe & Morris' Rooms.

WEDNESDAY, FEB. 21.—Japanese Lilies, Palm Seeds, Continental Plants, Herbaceous Plants, &c., at Frotheroe & Morris' Rooms.

FRIDAY, FEB. 23.—Imported and Established Orchids at Frotheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—33°4'.

ACTUAL TEMPERATURES:—

LONDON.—February 14 (6 P.M.): Max. 39°; Min. 33°.

Cold thaw; rain; sleet.

PROVINCES.—February 14 (6 P.M.): Max. 42°, West Ireland; Min. 34°, Home Counties.

The Royal Horticultural Society. The annual meeting was held on Tuesday last in the Lindley Library, Sir TREVOR LAWRENCE presiding. The Report, the greater portion of which was printed in our columns last week, was made the subject of running comment by the President, who indeed may pride himself on the progress the Society has made. Sir TREVOR deserves the gratitude of the Fellows for the way in which, through evil report and good report, he has stuck to the Society. Now that there is once more a vacancy in the list of Victoria Medallists, we hope Sir TREVOR will be induced to overcome his scruples, and place himself where he ought to be—at the head of that select body.

The sum spent on the Library, small though it be in proportion to the income of the Society, is nevertheless well expended, and the gratitude of the Trustees and of the Fellows at large may be tendered to the Council for this most judicious expenditure.

The new Charter again proves to have been less expensive than we had imagined. We have not seen its provisions, but from all we learn, it must be a great improvement on its predecessors. The bye-laws will require very careful manipulation, and we hope every facility will be given for their consideration before they are sought to be officially promulgated. Every effort should be made by the Council to keep in touch with the Fellows. We mention this because no intimation—at least we saw none—was given of the proposed alterations in the Council: "No other nomination having been received, there is no occasion under the new Charter to issue a balloting-sheet." The Fellows, no doubt, ought to have known, but as a matter of fact they either did not know, or they ignored the fact, that it was

open to them to have nominated a member of Council. Again, the sentence above cited induces us to ask when the new Charter came into operation? If on November 19, 1899, there was plenty of time to have made the fact known.

Nothing but approval can be felt for the selections made; but another year we trust due notice will be given, so that if by chance the outside Fellows desire to exercise their right, they may be able to do so without incurring the risk of being too late.

The proposed removal of the experimental-garden from Chiswick, on the occasion of the centenary of the Society in March, 1904, is obviously a matter for serious consideration. The cost of obtaining land, and of re-erecting the houses and pits in a new situation, will be so large, that even if special aid be forthcoming, we cannot look forward to the prospect without apprehension.

The uprooting of old ties and traditions may be only a matter of sentiment; but even if that be so, sentiment is not without influence.

The number of Fellows who visit Chiswick is not large, and if the garden be removed further afield, the diminution will no doubt be accentuated.

It is satisfactory to note that in connection with the proposed new Chiswick, the Council hope to establish a horticultural college that shall become a real centre of horticultural education. We have always urged the necessity for such a school, and there is no doubt but the work in connection therewith could be most fittingly done by the Royal Horticultural Society.

The finances of the Society are most encouraging, there being a surplus upon the working last year of £1751. This is larger than in any previous year, and the number of Fellows at the present time is greater than ever.

For a report of the general annual meeting, see p. 110.

Examinations. Some people appear to entertain entirely wrong notions as to the purpose of such an examination as that conducted by the Royal Horticultural Society. Some think it is not practical enough, others would confine it simply to the subject of the courses of lectures on particular subjects, often not more than six, which the candidate may or may not have had the opportunity of listening to. Some talk as if the passing of an examination and the acquisition of a certificate, immediately qualified the candidate to take a head-gardener's place, or the post of superintendent of some gardening institution. Would they expect some newly-fledged M.D. at once to take the charge of a large hospital? or a midddy to take command of a battleship? And yet this is representative of what some people expect. In a pursuit like gardening, experience is the great teacher; but how can you expect a youth or maiden of sixteen or eighteen to have experience—that is a plant of slow growth.

What then is the object of the examination? Simply to direct the studies and control the education of the candidate in such a way that he may be imbued with scientific method, and learn the importance and co-relation of certain facts and inferences. This discipline is certain to be useful to him in after life. It will give purpose and direction to his work, enable him to gain experience with greater facility, and apply it with greater readiness.

In some quarters it is recommended that the

examinations for these young students should be more practical, that the candidates should, in presence of the examiner, undertake the potting of an Orchid, the grafting of a fruit tree, and so forth. This we think is a mistake. Such a test should come not as a preliminary matter, but after the candidate has passed his examination in the principles of his art. Two or three years would not be too long an interval between the entrance examination and the practical test. The interval, of course, should be filled up by practical work in the garden. The entrance examination should, in our opinion, be almost if not entirely devoted to the principles of gardening, with only incidental reference to its practice.

Teachers and examiners should recognise the fact that the object is not to turn out accomplished scientists, nor to produce head-gardeners at eighteen years of age, but men with sufficient knowledge of botany and allied sciences to enable them to benefit by their subsequent course of practical training, and profit by their gradually gained experience.

MR. J. B. CARRUTHERS, a son of Mr. WILLIAM CARRUTHERS, formerly Keeper of the Botanical Department, British Museum, has been appointed Assistant-Director and Mycologist at the Botanical Gardens, Peradeniya.

SIR JOHN LUBBOCK is to be henceforth known as Lord AVEBURY.

THE DUKE OF PORTLAND has undertaken to preside at the sixty-first Anniversary Festival of the Gardeners' Royal Benevolent Institution at the Whitehall Rooms on May 18 next.

PRESENTATION.—Mr. J. BARSON, general foreman at Eastnor Castle gardens, is leaving that place to become gardener to the Earl of SANDWICH, and on the 8th inst. the garden staff presented their departing colleague with a handsome tea and coffee service. Mr. GEO. MULLEN, head gardener, made the presentation, and expressed the hope of all the employees in the garden that Mr. BARSON would be successful in his new position. The Eastnor Castle Cricket Club also wished Mr. BARSON success, and made a presentation of a marble timepiece.

RETIREMENT OF MR. A. HENDERSON, OF THORESBY.—On the death of his noble employer, Earl MANVERS, Mr. HENDERSON had an annuity left him, and he resigns his charge of the gardens at Thoresby after thirty-eight years pleasant and happy service, during which long period of time he has always received the greatest of kindness from the family. His foreman, WILLIAM ROBERTSON, is his successor.

MR. J. W. WATT, a son of Mr. WATT, of the firm of Messrs. LITTLE & BALLANTYNE, Carlisle, is about to embark to South Africa as a trooper in the Imperial Yeomanry, and the employees of the firm have presented Mr. WATT with an address, demonstrating their appreciation of his patriotic conduct, and expressing their hope that when he has done his duty, he may be spared to return to this country in safety. Additional addresses have been presented to Mr. WATT by the representatives of the seed department and of the office.

SIR MICHAEL FOSTER, M.P.—The country may be congratulated on the election of Sir MICHAEL FOSTER as representative in parliament for the University of London. He is a typical representative for the most advanced and progressive of our universities, and, as a man of business, as well as for his scientific habits of thought, will be a valuable addition to the House.

MR. H. J. ELWES, F.R.S.—Much sympathy is felt for Mr. ELWES, of Andoversford, whose son has been seriously wounded in South Africa.

RHODODENDRON GRANDE.—Among the Himalayan species of *Rhododendron* of doubtful hardiness in this country, excepting in the western and south-western maritime counties, few finer white-flowered ones exist than *R. grande*. The plant possesses flowers 2 to 3 inches in length, and 2 to 2½ inches in diameter, having a very short calyx, obscurely lobed, and a corolla limb of somewhat short segments. It flowers in the month of March. The leaves are nearly flat, glabrous, and

announced that on the occasion of the forthcoming International Exhibition in Paris, an International Congress of Botany will be held there from October 1 to 10, both dates inclusive. The subscription for membership has been fixed at 20 f., and those who may be desirous of taking part in the proceedings are desired to communicate with M. HENRI HUA, Trésorier du Congrès International de Botanique Général, 2, Rue de Villersexel, Paris. Mr. GEORGE MASSEE, F.L.S., exhibited lantern-

they were both native plants, as the former is indigenous on the west coast of France, and on the north coast as far as Cherbourg and Barfleur, while the latter is a native of West France as far north as Vendée, and reappears on the coast of the Netherlands. He suggested that the former had been passed over, owing to its resemblance to *P. canariensis*; the latter owing to its inconspicuous habit, its early flowering, and the fact that it grows on the lower slopes of the cliffs in an unfrequented



FIG. 32.—RHODODENDRON GRANDE.

(From a photograph taken in the Gardens at Osberton Manor, Worksop.)

of deep green tint above and silvery beneath. It grows to a height of 30 feet in its native habitat. The species is figured in the *Botanical Magazine*, t. 5054, as *R. argenteum*. Our illustration (fig. 32) is after a photograph sent us by Mr. FOLJAMBE's late head gardener at Osberton Manor, Worksop, and shows a large plant in bloom standing in a glasshouse.

LINNEAN SOCIETY.—On the occasion of the meeting held on February 1, 1900, Dr. A. GÜNTHER, F.R.S., president, in the chair, the President

slides in illustration of his paper on the origin of the Basidiomycetes, the substance of which had been communicated at the last meeting, and recapitulated the conclusions at which he had arrived. A discussion followed, in which Professor TRAIL, Mr. C. B. CLARKE, and Professor FARMER took part. Mr. CECIL R. P. ANDREWS, M.A., exhibited two non-British Grasses which he had found last year in the Channel Islands—*Phalaris minor*, Retz., from sandy shores and fields in Guernsey and Alderney; and *Milium scabrum*, Merl., from the cliffs of Guernsey. He maintained that

part of the island. A discussion followed, in which Messrs. JAMES GROVES and G. C. DRUCK joined, and Mr. ANDREWS replied. Mr. R. MORTON MIDDLETON, F.L.S., showed divers forms of *Asplenium Bradleyi* from the mountains of Tennessee.

THE BANDED SCIRPUS.—When alluding to this plant last week, we unfortunately entirely overlooked a more definite and satisfactory communication to our own columns in 1883; vol. xx., p. 168, from the pen of Mr. GEORGE NICHOLSON. May he forgive our inadvertence.

HORTICULTURISTS ABOUT CROYDON, though possessing two societies which have concerned themselves only with holding exhibitions in the summer and autumn, have enjoyed no facilities for the mutual improvement of themselves by means of debate. A correspondent a few months ago called attention to this fact in our pages, and so another society has been formed in Croydon, and will be known as the Croydon and District Horticultural Mutual Improvement Society. Meetings will be held monthly, and the first is to take place in the Sunflower Coffee Tavern on Tuesday evening next, when a paper will be read by Mr. GEO. GORDON. Sixty members have been enrolled. Our correspondent who first drew attention to the subject has been elected President, and the Secretary is Mr. JOHN GREGORY, 60, Canterbury Road, Croydon.

CEDARS OF LEBANON.—"Close to the hall (West Wycombe) are two very large and beautiful Cedars of Lebanon, both of them being then (August) in cone. One is considerably older than the other, and the tint of the foliage is different. The girth of the largest tree at 5 ft. from the ground was found to be 71 inches (quarter girth), or nearly 24 ft., the largest Cedar ever seen by any arboriculturist present. At Houghton Hall, in Norfolk, the members had seen a Cedar, in 1897, with a girth of 17 feet 10 inches. Next year, at Edenhall, they saw two which measured 22 feet 8 inches, and 22 feet 4 inches respectively, and they then imagined that their surprises were at an end. But this unexpected giant upset all their preconceived notions as to the dimensions which a Cedar may attain in this country." *Transactions of English Arboricultural Society*, vol. iv., part ii.

WAS SHAKESPEARE AN EVOLUTIONIST?—Certainly he was, and also a Darwinian before DARWIN! A plant or animal is always in the course of its own development to repeat in some measure the appearances which its ancestors presented, and this knowledge enables the naturalist, to some extent, to forecast the course of phenomena in the future. Now see how Shakespeare puts it:—

"There is a history in all men's lives,
Figuring the nature of the times deceased;
The which observed, a man may prophecy,
With a near aim, of the main chance of things
As yet not come to life: which in their seeds,
And weak beginnings, lie intresured."
2 Henry IV., Act iii., sc. 1.

"HOME AND GARDEN."—We have already had occasion to notice the publication by Miss Jekyll of this companion-volume to *Wood and Garden*. That book was so fresh, contained so many valuable hints, and evinced such taste in garden matters, that it came as a new "break," to use a garden term, in garden literature. No wonder that its success prompted the issue of a second volume which, it is also not surprising, is only less good than its predecessor. In it we are told how the house was built, and then we are treated to a number of pleasant chapters on miscellaneous subjects, more or less relevant to the garden. The "Home Pusses" we venture to think should have been kept at home, their doings are amusing enough, but hardly consistent with the serious purpose of the book. The illustrations are excellent, and the book has a good index—need we say more to recommend it to the notice of our readers. It is published by LONGMANS & CO.

STOCK-TAKING: JANUARY.—Notwithstanding the war now raging in South Africa, and rumours or suggestions of fresh complications, the Trade and Navigation Returns for January read as if Trade and manufactures were moving along in the wake of peace; for under both headings of "imports" and "exports" there is a notable increase compared with the same period last year—emphasized, moreover, by the enormous tonnage taken up for Government transport service. As to imports, the increase for the month is £3,344,243; the value for last month being £44,560,849, against £41,216,606. Preparing for Budget purposes,

apparently, some items show a large increase; thus: Tea has gone up by 11,314,962 pounds; Cocoa by 2,442,942 pounds; Coffee, 2960 cwt.; wine, 96,031 gallons; and so forth. There is a fall of £1,336,317 in materials (raw) for textile manufactures, but a gain of £1,067,494 in raw materials for other industries and manufactures. The following are our usual excerpts from the summary table:—

IMPORTS.	1899.	1900.	Difference.
	£	£	£
Total value ...	41,216,606	44,560,849	+3,344,243
(A.) Articles of food and drink—duty free ...	14,211,831	14,581,453	+369,622
(B.) Articles of food & drink—dutiable	1,717,053	2,234,550	+517,497
Raw materials for textile manufactures ...	9,626,504	8,290,187	-1,336,317
Raw materials for sundry industries and manufactures	8,120,391	4,187,885	-3,932,506
(A.) Miscellaneous articles ...	1,170,841	1,464,095	+293,254
(B.) Parcel Post ...	156,372	145,690	-10,682

Respecting the new arrangement for recording imports of fruit, &c., a fresh feature has been introduced by the compiler of the Returns. For the future, these will be given in hundredweights instead of bushels; it thus necessitating for the present the use of value with which to ascertain "differences." The following are the figures for month of January in the two years:—

IMPORTS.	1899.	1900.	Difference.
	Bushels.	Cwt.	Value.
		£	£
Fruits, raw:—			
Apples ...	303,058	206,823	+16,286
Bananas... bunches	.....	90,242	+37,752
Grapes ...	1,433	440	-92
Lemons ...	183,218	104,170	+2,386
Nuts—Almonds ...	6,815	10,950	+11,610
" others, used as fruit ...	.....	37,703	+9,665
Oranges ..	1,244,265	914,465	+33,319
Pears ...	7,382	2,860	-555
Plums ...	77	20	-204
Unenumerated...	66,040	7,206	-24,017
Vegetables, raw:—			
Onions ... bush.	529,753	631,017	+7,599
Potatoes ... cwt.	50,976	275,192	+40,164
Tomatoes ...	...	37,496	+23,591
Vegetables, raw, unenumerated ... value	£109,905	£70,496	+39,409

It remains to note here, respecting the item "fruit unenumerated raw," that prior to this year it included Apricots and Peaches, Bananas, Currants, Gooseberries, and Strawberries. Passing now to—

EXPORTS,

we have to note the satisfactory and encouraging increase of £3,236,448, thus obtained, January, 1900, £23,583,682, as against £20,347,234 in January of last year. The making of ships for foreign customers has had to give way to home consumption, and all classes of iron manufactures have gone up wonderfully, and to all parts of the world; pig-iron goes just now to the United States. Coal has increased its export by nearly three-quarters of a million sterling; and textiles—cotton, linen, and woollen—show plenty of life. Though India does not come to the front so well as formerly for cotton goods, America purchased largely in all three of the textiles named above. To conclude, owing to fresh arrangements of details, Members of Parliament looking for the item "Confectionery," will no longer find it arrayed under "Pickles," but just where they ought to be found in a greatly improved statistical record.

EPHING FOREST.—The Epping Forest Committee of the Corporation, in recommending that £4000 should be placed to the credit of the fund for the year ensuing, report that the thinning operations, which have been continued for nearly twenty years, have resulted in a marked improvement to the timber and undergrowth, while the natural growth of young trees, the timber of the future, has been promoted. The most urgent arrears have now been overtaken, and a much smaller annual felling has been necessary during the last and present seasons. Very little planting has been needed except for the purpose of hiding fences or other unsightly enclosures abutting on the forest, and replacing trees destroyed by the drought. In this connexion the committee report that a very large number of fires occurred last summer in various parts of the forest, owing to the extraordinary heat and drought, but with one exception, no serious damage was done.

"ICONES SELECTÆ HORTI THENENSIS."

The second fascicle of illustrations of plants growing in the collections of M. VAN DEN BOSSCHE, at Tirlemont, has lately been issued. The illustrations are excellent for botanical purposes, and the text appropriate. Some of the plants are old friends, but no doubt as time goes on we shall have illustrations of less well known plants; in the meantime, we can heartily commend the work to those who desire to know something of the plants they cultivate.

THE ENGLISH ARBORICULTURAL SOCIETY has just issued a new part of its *Transactions* (SIMPKIN, MARSHALL & Co.). It contains a report of the annual excursion, when Osterley Park, near Hounslow, Syon, Kew, Richmond, were visited on one day! On the third day, the Beech-woods near Wycombe were visited, and the annual dinner took place in the evening. On the fourth day the members visited Windsor Castle and Windsor Forest, a long day's work, finishing up with a reception at the Surveyors' Institution. Next day Bushey Park, Hampton Court, and Oxshott were visited. It cannot be said that the arboriculturists did not work hard. The fault on most of these occasions is an overloaded programme.

LAWNS.—If there is one feature more than another in which English gardens are superior to those of the Continent, it is in the construction, and especially in the maintenance, of the lawn. Of late years tennis-lawns and "putting-greens" have also put forth strong claims to recognition, and the gardener is often called on to construct one or other of these adjuncts. During the season the gardener is constantly taking away and repressing growth by frequent mowing and rolling; he should, therefore, when occasion serves, refresh the soil exhausted by the continuous growth of a grass-crop, and stimulate the growth of the unhappy grass plants by a surface-dressing of manure, or by the use of well-selected artificial. As to weeds, anything which encourages the growth of the grass will, in proportion, be injurious to the weeds, so that the timely application of a mixed mineral and nitrogenous manure may save a great deal of trouble in extirpating weeds at a future time. Messrs. SUTTON have published, through SIMPKIN, MARSHALL & Co., a booklet on the subject of "garden-lawns, tennis-lawns," "putting-greens," and cricket grounds, as elegant as it is serviceable.

MEETING OF THE GHENT HORTICULTURAL SOCIETY.—At the meeting of the Chambre Syndicale des Horticulteurs Belges and of the Société Royale d'Agriculture et de Botanique held on February 5, the following awards were made:—Certificates of Merit for: *Odontoglossum Ruckerianum superbum*, and for *Lælia Gouldiana*, and for *Odontoglossum crispum grandiflorum* (par acclamation), and for *Cattleya Trianae bella* (à l'unanimité), all from M.G. VINCKE-DEJARDIN; for *Cattleya Trianae alba* (à l'unanimité), from M.J. BOELENS; *Ficus radicans variegata*, M. LOUIS DE SMET; *Odontoglossum Wilkeanum* "Mme. Dobbelaere," from MME. DOBBELAERE,

a Fern introduced from the Congo in 1899 from M. M. VERDONCK; cut Cyclamen (*par acclamation*), from M. DRAPS-DOM; and cut blooms of *Cypripedium* Mme. Stepman from M. STEPMAN. Certificates for cultivation and flowering were allotted for *Oncidium Gardneri*, from M. L. DE SMET-DUVIVIER; and for *Acacia platyptera* (*à l'unanimité*), from M. E. BEDINGHAUS. Certificates for Cultivation were allotted for *Cocos Weddelliana*, from M. DE CLERCQ; and for *Blechnum brasiliense* × *Lomaria gibba* (*à l'unanimité*), from M. L. DE SMET-DUVIVIER; and Honourable Mention was awarded for *Corypha australis Kerchovae*, from M. ED. PYNAERT VAN GEERT. The jury expressed the hope of seeing at a later exhibition, *Anthurium Scherzerianum* (hybrid), from M. L. DE SMET, and another hybrid *Anthurium* from the Ghent Horticultural Society.

FALSE IDEALS.—It is very pleasant to read Mr. LESLIE'S note on this subject in the *Garden* for January 27, pleasant because we believe it to be the truth, and satisfactory because it coincides so thoroughly with what we have often written in this journal. There are some flowers in which it almost seems as if the express object had been to crush out all the history of the flower and obliterate its significance. "So long," says the eminent Academician, "as we follow the lead which Nature, as it were, points out to us, we are on safe ground, for by assisting her in the way of her own direction, increase of beauty frequently rewards our labours. When a plant has a natural tendency to double its blossoms, or crosses easily by fertilisation, the results are nearly always interesting and satisfactory; but whenever she has distinctly marked out the character and purpose of a plant, and so fitted it that it shall do its best for the general effect in the place among its fellows which she intends it to occupy, it seems to me to be folly for the cultivator to interfere. By so doing, novelties and monstrosities may very likely be secured, but an increase of beauty—never." At the same time, it must not be forgotten that the conditions under which a wild plant, or a plant treated as wild, grow are different from those under cultivation, and that the requirements in the two cases are often widely different. We do not want to limit Nature's power of adaptation, but simply to direct it, so as to satisfy our own requirements, whatever they may be. To lay down a set of "properties," in so far as those properties are merely arbitrary, and to endeavour to act on them, is to allow intelligence and the perception of beauty to remain in abeyance.

ROYAL TREES.—In the vicinity of Frogmore there is a large number of ornamental trees scattered about the well-kept lawns. Amongst these are a *Salisburia adiantifolia*, planted by Princess Victoria Eugénie and Prince Maurice of Battenberg on the Queen's eightieth birthday; a deciduous Cypress, about 85 feet high; *Retinospora obtusa aurea*, planted by the Empress Eugénie, March 5, 1890; *Thuja Pattoniana*, planted by the Queen of Denmark on December 1, 1875, about 18 feet high; *Abies lasiocarpa* (concolor?), planted by Princess Thyra of Denmark on December 1, 1875; *Abies Nordmanniana*, planted by H.R.H. the Duchess of Edinburgh on March 11, 1874; *Cupressus Lambertiana*, planted by the Prince of Wales on March 24, 1864; *Thuja gigantea*, planted by H.R.H. Princess Louise of Hesse on July 1, 1864; another of the same kind, on the opposite side of the path, 55 feet high; another Maiden-hair Tree (*Salisburia adiantifolia*), planted in 1754; *Thuja gigantea*, planted by H.S.H. Princess Hohenlohe on March 16, 1857. Close to the mausoleum is a particularly good-looking deciduous Cypress, and a fine *Cedrus Deodara* and *C. atlantica*. *English Arboricultural Society Transactions*, vol. iv., part 2, p. 207.

SAPROLEGNIA.—This is a fungus not much known to horticulturists, excepting as attacking flies in autumn. The experiments of Professor KLEBS, however, on the influence of varying

amounts of food are so important that we call attention to a brief summary of them in the December number of the *Botanical Gazette* (Chicago). It is found that this species will grow indefinitely without either sexual or asexual reproduction, if nourishment be abundant; but at any time the extensive formation of zoospores can be incited by simply starving the hyphæ or threads of which the fungus consists, e.g., by placing them in water. By varying the nutritive value of any medium, the fungus can be made at will to assume a purely vegetative condition; to produce rudimentary sporangia; to form sporangia which bear zoospores that do not escape, and to produce functional zoospores. It is obvious that the principles here laid down have a wide application, and they show that in certain cases the production of male or female plants, or of purely vegetative conditions, is within the power of the experimenter.

THE WEATHER OF JANUARY, 1900.

FOR the third time in succession the opening month of the year was chiefly remarkable for an almost complete absence of real winter weather. At its commencement, the extraordinary low pressure of the last few days of December was followed by some exceedingly heavy rainfalls, the total of the first week over the south-west of our islands equalling or exceeding the whole of the fall of the remainder of the month, although the weather continued throughout the month of a changeable, wet, and disagreeable character.

In many districts there was a complete absence of frost during the month, but there were many frosty nights over our central, north-eastern, and eastern counties, although none of any severity. On the 28th, however, the wind (after with slight exception blowing for a month from a direction varying from west to south) became northerly, and a decided fall of temperature set in, and by the close of the month conditions had become most favourable for a spell of cold weather, although in the south-west the temperature still remained several degrees above freezing-point.

Taking the month as a whole, it shows in many respects over the greater part of our islands a striking resemblance to the opening month of last year. In both heavy rainfall was general, accompanied by mild weather until the last week, when a spell of cold spread over our islands. Last year, however, mean temperature was deficient in the north owing to some severe frost during the last week.

The following table will show the rainfall and mean temperature at ten stations well distributed over our islands:—

Stations.	Total Rainfall.	Difference from Average.	Mean Temperature, Max. and Min.	Departure from Average.	Hours of Bright Sunshine.
Aberdeen ...	Ins. 3.45	+1.07	Deg. 38.5	+1.1	53.4
Leith ...	2.35	+0.57	40.3	+1.7	—
Spurn Head ...	2.44	+1.06	39.8	+2.2	—
Liverpool ...	4.50	+2.32	40.4	+1.5	—
Valencia ...	5.03	—1.28	44.8	+0.4	60.1
Scilly ...	6.42	+2.79	47.9	+2.5	61.2
Jersey ...	4.88	+1.07	45.7	+3.9	—
Bristol ...	4.54	+1.43	41.2	+2.0	—
Oxford ...	2.30	+0.14	40.1	+2.4	—
London ...	2.35	+0.29	40.3	+2.0	23.1

It will be seen, therefore, that rainfall, excepting at Valencia, was everywhere in excess. The great excess at Scilly was chiefly due to an extraordinary fall of 2.75 inches, on the 6th. Other falls reported of over an inch or more in twenty-four hours were:—1.37 inch at Parsonstown, and 1.05 inch at Roche's Point, on the 1st; 1.10 inch at Aberdeen, and 1.03 inch at Bristol, on the 2nd; 1.27 inch at Valencia, on the 5th; and 1.25 inch at

Loughborough, and 1.45 inch at Liverpool, on the 6th.

Mean atmospheric pressure was generally below the average. During the greater part of the month the barometer was lowest over the north of our islands, but during the last week an anti-cyclone formed over Scandinavia, and pressure became lowest over our northern districts. The greatest pressure reported at 8 A.M. was 30.48 inches at several south-western stations, on the 11th; and the least, 28.96 inches at Stornoway, on the 15th.

Temperature over our islands ranged from a maximum of 55° at Aberdeen on the 22nd, to a minimum of 24° at Loughborough on the 21st. Similar minima were also reported from Parsonstown on the 5th, and Nairn on the 28th.

Thunderstorms occurred on the 17th at Roche's Point, on the 20th at Stornoway, and on the 27th at Jersey; while lightning was reported from Wick and Aberdeen on the 9th, from Nairn and the north-west of Ireland on the 27th, and from Scilly on the 28th. Snow fell in the north of Scotland on the 4th, 5th, and 9th, and in many places during the last few days, but there were no serious storms. Aurora was reported from many stations in the north on the 19th.

Although no violent gales occurred, moderate ones were frequent throughout the month. The most extensive reported were from the south over the English Channel, and from the north-east in Scotland on the 3rd; from the south, on our northern and western coasts, on the 6th; from the south-west, in the west and north, on the 19th; and from the south-west to north-west, over the northern districts, from the 21st to the 24th. *H. H. Harding, F.R.Met.Soc.*

THE CULTURE OF KALOSANTHES.

I FEAR in the race for new plants, the older, but in my opinion, equally beautiful *Kalosanthès*, are at the present day getting overlooked, although their management is not difficult or their value as decorative plants of an inferior kind. The genus *Kalosanthès* is now placed with *Crassula* and *Roehea*, and doubtless those who like the *Crassulas* will not fail to grow the *Kalosanthès*, of which *K. coccinea* is one of the best, and *K. jasminæ* (*Crassula jasminæ*) is a very pretty cool greenhouse plant, much favoured by market growers. The flowers, resembling those of *Jasminum officinale*, are white at the first and become pink later on. Another well known variety is *K. odoratissima*, a plant having fragrant, creamy-white flowers, which is less showy than *K. coccinea*, but still worthy of cultivation; there are others, such as *K. varicolor*, a plant of less decorative value than any of those previously named. For many years past *Kalosanthès coccinea* and *K. jasminæ* have been grown in large quantities near the metropolis for the markets, but of late years I have noticed these are less grown; and this is also true of private gardens. In the latter large specimens used to be found, but they are now very rare. The chief value of these species is as yearling or two-year-old plants, small plants producing a proportionately large amount of flowers; moreover, they can be employed for a great variety of purposes. Large specimens have their uses for the decoration of the conservatory and greenhouse from April to August. As regards their culture, it may not be out of place to note that if small plants—say, in 4-inch or 6-inch pots—are desired, the plants are kept in a growing state, not dried off like plants of two, three, and four years old; the strongest shoots are removed from the plants, and those which have not flowered are removed at 5 to 6 inches in length, being denuded of leaves, and the cuttings are then placed singly in small pots in very sandy soil, made firm, and water sparingly afforded till roots have pushed forth. Whilst still unrooted the cuttings should be shaded and kept close under a cold frame or hand-glass.

Cuttings taken in the summer strike freely if

the plants from which they are taken are previously kept rather dry for a few days. Where this cannot be done, cuttings may be removed from a plant in bloom, and be dried for some hours in a shady house or frame before inserting them in the cutting-pots. They strike best when placed round the sides of a smallish flower-pot. When rooted, let the cuttings be potted singly in large 60's, and repot them for flowering into 5-inch pots. There is a gain in point of time by striking the cuttings singly in small pots, but great care must be exercised in the first stages in affording water, and the preparation of the cuttings. The after treatment is simple. At the first potting, a light soil should be employed, such as leaf-mould and peat, and finely-sifted mortar-rubble for older plants; but young plants like sand in the soil, and soon go ahead. From the month of October to the end of March following, the plants need but a very small quantity of water at the root, but they should occupy a light place—say, the back wall of a vinery or greenhouse, away from damp surroundings. The complete drying off of small plants is not advisable, as in their case growth should not entirely cease during the winter. Cuttings should be struck as early in the summer months as possible if plants are wanted for next season's flowering, and the plants got into their flowering pots before the autumn arrives.

Some gardeners allow two years to elapse before destroying the plants. Under this method, shoots that have flowered are cut, and the others tied-in to make symmetrical plants. The plants should then (early summer) be partially shaken out, repotted, placed in cold frames in the full sun, and kept close for a short time, syringing and shading them till new roots are made. Another method is to propagate strong shoots, taken from plants not showing flower, doing this early in the spring, growing the plants on during the summer, first in frames, and then in the open, till the end of September, then housing the plants, and beginning to feed in April for summer bloom. *K. jasminae* is the earliest species to flower, and this is often grown for May flowering; coccinea and versicolor or odoratissima for succession. These make excellent house plants, and if they are grown as advised, they need but little support from stakes, excepting when of large size. I would advise as soon as they have done flowering, to partially cut back the old growth, leaving any young growth at the base to dry off for two or three weeks, standing the plants on a hard coal-ash bottom in the full sun, then, when new growth appears, to partially shake out and repot in sandy compost, lowering the plants as much as possible, and to grow in frames, as advised for younger plants. *G. Wythes*.

NURSERY NOTES.

MESSRS. HUGH LOW & CO.

ORCHIDS certainly have the advantage over many other classes of plants, that the different members of the family produce a continuous selection of flowers all the year round, and the advantage is the more evident at the present dull season when little else than Orchids is to be found in bloom. At the present time, in the Bush Hill Park Nurseries of Messrs. Hugh Low & Co., a very fine display of *Phalenopsis*, a large number of their superb form of *Dendrobium Wardianum*, some splendid varieties of *D. crassinode*, and other species, are making a fine show.

The very large and healthy collection of the showy *Cattleyas* are profusely set with flowering-sheaths, some thousands of *C. Mendeli*, *C. Mossiae*, and *C. Schroderae*, as yet unflowered, being looked forward to with interest. Among those in flower is the pretty *Cattleya Trianae plumosa*, a perfectly-shaped bloom, with distinct purple feather on the petals; a very large specimen of *C. Trianae alba*, with many buds; and other fine-named varieties.

The *Cypripediums* are in great quantity and fine health. The immense quantity of *C. Lawrenceanum*

(out of which one fine example of *C. Lawrenceanum* Hyeaunum had been parted with among common *C. Lawrenceanum*), is now being watched for similar good fortune. One strong plant of the true *C. L. Hyeaunum* is present, and also the worthless form of it known as *C. L. Hyeaunum Gratrix's* variety. Among others in bloom is a small lot of *C. niveum*, now getting scarce; some good *C. bellatulum*, the best form of *C. x Arthurianum pulchellum*, *C. x Hera*, the fine *C. x Niobe superbum*, *C. Rothschildianum*, *C. x Leeaunum* in great variety, including *C. x L. giganteum*, and the distinct *C. x L. Clinkaberryanum*; *C. x Henry Graves*, *C. x Bruno*, *C. x Minnie Ames*, the handsome *C. x J. Howes*, a new and pretty hybrid between *C. Charlesworthi* and *C. callosum*, *C. x Madame Georges Truffaut*, a grand specimen of *C. caudatum Wallisii*, with several strong spikes; *C. x calurum*, and a fine, nearly white form of it; and the handsome *C. x Minoes (Spicerianum x Arthurianum)*, which is certainly one of the most beautiful of its class.

In the many ranges of *Odontoglossums*, the large quantity of plants of *O. Pescatorei* are specially remarkable for their vigour and the profusion of flower-spikes they are sending up. The *O. crispum*, too, are about to flower well, and already some are in flower, and with them a few hybrids; one noble form of *O. x Wilkeanum*, a large yellow flower, but with dark red-brown blotches, being very remarkable.

Among the *Lælia* aneeps in bloom are two fine whites, with a very faint tint of pink on the lip, which are in size and form like *L. a. Schroderiana*; also the true *L. a. Hilli*, and other named varieties.

Other good batches remarked in flower or bud were a fine type of *Dendrobium Fytchianum*, the elegant *D. Madonna*, of which the typical and the pure white forms were in bloom; *Cymbidium Lowianum*, and its yellow variety concolor; *C. Tracayanum*, the scarlet *Sophrontis grandiflora*, *Lælia harpophylla*, *Oncidium splendidum*; and among a number of other hybrid *Dendrobiums* the chaste, pearly-white *D. x melanodiscus Luna*; the richly coloured *D. x splendidissimum* Low's variety, &c.

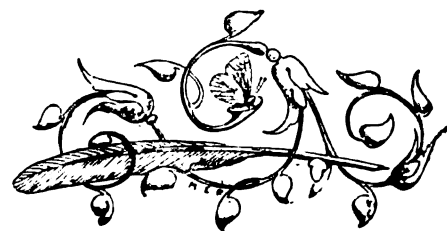
Other plants noted were the fringed-lipped *Brassavola cuspidata*, a fine lot of *Cynoches chlorocylon*, *Catasetum callosum*, *Dendrobium Findlayianum*, a good lot of *Epidendrum vitellinum*, a profusely-flowered batch of *Angraecum atratum*, and an interesting lot of hybrid *Lælias*, *Cattleyas*, and *Lælio-Cattleyas*.

ARCHONTOPHÆNIX CUNNING-HAMI.

THIS handsome species of Palm, better known in gardens as *Seaforthia elegans*, is a native of Queensland and New South Wales, where it reaches a height of 60 feet. In this country it is usually grown in the cool greenhouse or the conservatory.

In subtropical lands the species forms a decorative object of much value in the garden; and as indicating this fact, we afford our readers an illustration (fig. 33, p. 109), one of several photographs sent us, of a specimen growing in Mr. W. P. Gould's garden, El Montecito, California. Mr. John M. Pear, the gardener, states that the Palm is about twelve years old. The figure shows two expanded inflorescences, and the leaf as it fell at that time. We are told that in the same garden there exists a *Cocos plumosa* of the same age as the figured Palm, which has reached a height of about 50 feet.

PUBLICATIONS RECEIVED.—*The Naturalists' Directory*, for the use of Students of Natural History and Collectors of Zoological, Botanical, or Geological Specimens, giving the names and addresses of British and foreign naturalists, natural history agents, societies and field clubs, museums, magazines, &c. (L. Upcott Gill, 170, Strand, W.C.).—*The Century Book of Gardening* (Geo. Newnes, Ltd., Southampton Street, W.C.), Parts 22 and 23.



HOME CORRESPONDENCE.

INFLUENCE OF THE STOCK UPON THE GRAFT OF THE RIBSTON PIPPIN APPLE.—When I read the paragraph in the issue of the *Gardeners' Chronicle* for Feb. 3, p. 77, I thought with sorrow that the writer's memory was failing him, or he would have remembered how I thrashed out this matter in 1869-70. Well, in 1848 I came to Woodstock, Oxfordshire, to live, and in the old rectory garden there was a Ribston Pippin Apple-tree in a bad state with canker, and near to it grew a tree of Blenheim Orange Pippin, old, but vigorous. I will mention this excellent Apple, as it will have intimately to do with what I am about to describe. It was raised by a shoemaker, Demster by name, of Old Woodstock. I saw the original tree soon after I came to reside at New Woodstock, and took a couple of miserable-looking scions from it, which I grafted on to a Crab stock, one of which "took," and I have the tree now growing in my orchard. One Grimmet, a famous basket-maker, lived there then, and a flourishing young tree was growing by the side of the older original tree, which Grimmet threatened to cut down as "being no good on," and because it stood in the way of the young tree. It occurred to me not long after hearing of this threat that I should like a bit of the wood to retain as a memento; but I was too late. Grimmet had cut down the tree and burnt it. It is just possible that I am the only person who can trace a direct descendant from the old Demster-tree, as myriads of trees, which had originated from the old stock, doubtless, were growing around in pristine vigour; interspersed amongst them being my then favourite. It also occurred to me that it might be possible to infuse new vigour and strength into the stunted and unhealthy Ribston Pippin tree, and with this view I sowed some pipe of the Blenheim Orange Pippin, as being most likely, from the healthy and vigorous character of the variety, to produce a stock that would bring about a change for the better, and prove whether fresh and vigorous sap from a young and free-growing stock would eradicate the almost universal destructive canker in the bark, and, as a consequence add fresh life to the tree. In the second year, I selected the strongest seedlings of the batch of Blenheim Orange Pippins, one of which had a forked stem, and this stock I whip-grafted with two weakly scions from the diseased stunted specimens, both of which, to my astonishment, grew, and by the following year they had made a strong growth. The young tree was then taken up, and planted against a wall. I then determined to carry my experiment further by removing one of the grafts just above its union with the stock; and in order to do this, I removed with my budding-knife about 2 inches of the bark all round, and quite down to the wood, by this means causing the formation of a callus. Further, I tied moss round the limb, keeping it moist; then bent it down, and pegged it horizontally upon the earth, which I covered with moss, which was kept constantly moist during the summer and autumn. The limb which was thus ringed, rooted into the moss and soil readily; and in the following November, I severed the limb or graft from the stock and planted it in a pot, where it continued to make good clean growths, though of not nearly so vigorous a character as its fellow which was left undisturbed against the wall. After several shiftings into larger pots, I likewise planted that one out. The tree against the wall was the first to produce fruit, the branches remained clean and free from canker; the foliage was fully developed, partaking very much of the character of the Demster, whilst the fruit bore a striking resemblance to that of the Ribston. In texture of flesh, the fruit was not so solid, and unfortunately it was of not so good a flavour—a combination of Blenheim and Ribston, but one of the best of autumn Apples for culinary uses. I had to wait for some

years for fruits upon my tree that I revered. At length fruits from each of them were sent to the Royal Horticultural Society's Fruit Committee in 1869, raw and also cooked. I was a member of the Royal Horticultural Society's Fruit Committee then, and so, being a member, I had to move away from the table whilst my productions were receiving judgment. Upon my recall, Mr. Barron said my "Apples were a step, in regard to flavour as com-

I can scarcely keep them alive, they have so completely gone back to the decrepit cankered state of the Ribston Pippin-tree. *Robt. Fenn, Sulhamstead, February 5, 1900.*

SWEET PEAS.—I was pleased to read the able article on Sweet Peas in a recent *Gardeners' Chronicle*, and I fully endorse the writer's advice to lovers of this now popular flowering-plant. Very

On such land it is almost impossible to afford too much water, particularly if the summer is like the last. By sowing in trenches, the mulching materials are not washed away, and water is more readily carried out. Syringing, copiously carried out in the evenings after hot days, benefits the plants greatly, and keeps thrips in check. Owing to lack of space, I can only find room to grow the following varieties, which, however, give a good range of colour:—*Blanche Burpees* (white), *Lady Nina Balfour* (mauve), *Mrs. Eckford* (pale yellow), *Salopian* (crimson), *Shahzada* (purple), *Countess of Powis* (orange-pink), *Princess of Wales* (striped-blue), *Emily Eckford* (blue), and *Aurora* (striped-pink). *T. H. B., Kingston Hill.*

GARDENING FOR INEBRIATES.—Until to-day I overlooked a paragraph in your issue of January 20. It is headed "Flowers and Frailty," and relates to the good effect on the female inmates of the Home of Correction of making them work in greenhouses erected for the purpose. You think this might be tried in England with advantage. Apparently, you are not aware that for several years past one most successful mode of treatment with the Home for Inebriate Women, Duxhurst, Reigate, is to employ them in gardening. This is done under the active personal superintendence of Miss Jessie Smith, one of the first two women students who took the Diploma of the Horticultural College, Swanley. *E. L. Chamberlain.*

THE QUINCE IN SUSSEX.—Referring to Dr. Bonavia's letter in your issue of last week, there is or was a large factory at Rye (Sussex) for making Quinces into marmalade, and for several years I laid in supplies of the preserve from this factory. Whether they also make the Quince into confectionery I am not aware, but I entirely agree with the Doctor, that it is a pity such a delicious sweetmeat as cotognata does not appear to be obtainable here. I have had it sent to me from Portugal as a present, but my efforts to ascertain where I could purchase some have failed. Could Dr. Bonavia kindly favour your readers with the address of any factory or retailer in Italy or elsewhere, where one could obtain it? *C. A. C., Arundel.*

CANNA AUSTRIA.—I should be glad to know if any reader of the *Gardeners' Chronicle* has been able to flower the *Canna Austria*; and if so, under what treatment? I have tried for the last two years, but without success. I may add that other Cannas, including *Canna Italia*, have done well with me, and flowered profusely. *S. W., Kent.*

A TRIAL OF EARLY DAFFODILS AT ARD CAIRN, CORK.—Early in November, I stated in the *Gardeners' Chronicle* that I was arranging a trial at Ard Cairn of early Daffodils. All the varieties were potted on November 1, and below is given a list of the varieties, and the date when each first flowered: *Early Bird*, Jan. 15; *pallidus præcox*, Jan. 18; *obvallaris*, Jan. 20; *Cervantes* and *John Bright*, Jan. 21; *Golden Spur* and *Saragoosa*, Jan. 23; *Ard Righ*, Jan. 24; *Henry Irving*, Jan. 25; *Golden Eagle*, Jan. 26; *Buttercup*, Jan. 27; *Countess of Annealey* and *princeps maximus*, Jan. 28; *Telamonius plenus*, Jan. 29; *maximus* (wild form), Jan. 30; *Tuscan Bound* and *King Umberto*, Feb. 1; *Irish cernuus*, *spurius*, and *Mina Troil*, Feb. 2; *Golden Plover*, Feb. 3; *Tuscan bicolor* and *Tottenham Yellow*, Feb. 5. Other cultivators in this locality who potted *Early Bird* on October 1, obtained blooms on December 15. The flowers are compact and pretty, and when the variety is plentiful it will be most popular with market-growers, being the first to bloom. *Wm. Baylor Hartland, Ard Cairn, Cork.*

FRUIT TREES.—The planting of fruit trees is in many gardens still to be done, and when the trees come to hand with signs of having been for a long time out of the soil, I have always found that to soak the roots, and indeed the entire trees, in water for a few hours before laying in or planting, was a great help towards recovery. The omission of this practice is a cause of many a failure with trees that were quite sound when despatched from the nursery. As soon as, or before being planted, it is prudent to cut back gross shoots which exist about the middle of the head, as these, if left untouched, serve to weaken the smaller and less vigorous ones, especially those near the ground. At one time I tried the extension plan with Peach-trees, that is, the strong shoots were laid in at full



FIG. 33.—ARCHONTOPHENIX CUNNINGHAMII, GROWING IN MR. W. P. GOULD'S GARDEN, EL MONTECITO, CALIFORNIA. (SEE P. 108)

pared with the Ribston Pippin, in the wrong direction," viz., "a step backward." I came to London a day before the committee sat, and stayed in Upper Wimpole Street, where I knew of an excellent cook, in order to have a pie made to appear fresh on the morning of the meeting. I forgot to forbid flavouring. The judgment ran: "The committee considered it to be an excellent pie, but the natural flavour of the Apples was completely disguised by Cloves and sugar!" When I came here I brought those experimental Apple-trees with me.

little advantage is gained by sowing very early in the open ground, as until the soil becomes warmed by the sun, the seeds do not vegetate, and they are liable to rot if cold, wet weather should set in. Those who have the convenience would do well to sow a few dozen pots of varieties, and follow the advice given by "E.M.," and they will have sturdy plants for planting in the open when favourable weather occurs in April. I find it necessary here to sow in shallow trenches, the soil of the garden being of a poor, light nature, over-lying the gravel.

length, but this seemed always to result in failure, the lower buds on the shoots not forming shoots, hence the trees were lacking in symmetry. *H. Markham.*

A FRUITFUL POT-TREE OF PEACH CRIMSON GALANDE.—In 1898 the late Dr. Lewis, of Broomfields, Henfield, had a tree of this variety about fifteen years old, which carried a crop of about 200 fruits. In 1899 I had the tree photographed, and the same afternoon I picked 205 Peaches and sent them to Covent Garden Market, and the next day (July 3) they realised in the market, according to the salesman's return, a little over 6d. each, or a sum of £5 4s. 3d. I have other trees of different varieties which bear just as well, and all of them are in pots. In about a fortnight from to-day, February 12, they will present a blaze of bloom. The tree of Crimson Galande looks likely to carry 200 fruits this season. *James Terry, Henfield.*

THE WEATHER IN NORTH WARWICKSHIRE.—We are having exceptionally severe weather in this part of Warwickshire. For many days in November, December, and January we were visited by dense fogs. On December 13 I registered 24° of frost; February 8, 24°; February 9, 22°; February 10, 10°; February 11, 2°; and February 12, 11°. Our altitude is 380 feet above sea-level. During the above-named period we had much snow. On Saturday and Sunday last snow fell, accompanied by a strong north wind. On Sunday last, whilst the wind was at its height, we had a visit from some hundreds of fieldfares, who took shelter on the ground and in the shrubs in the garden. The trees were observed to be quite a fluttering mass of these birds, all busy feeding on the plentiful Hollyberries. An examination of the shrubs this morning showed that not a berry was left on them. During these storms I have observed the Gold-crested wren—*Regulus cristatus*—busily searching for insects amongst my young Fir-trees. Although we have no very thick woods near, I am told the Goldcrest may be seen in goodly numbers. To make up for the lack of thick woods, the district is liberally besprinkled with isolated trees, and these, together with immense quantities of uncut hedgerows, form ample nesting-covert for all sorts of native birds—and also of the migratory ones, too, during the season of their visitation and nidification. *W. Miller, Berkswell.*

CONTINUOUS FLOWERING OF PANCRA TIUMS.—My *Pancratium*s have been flowering continuously for three years, or 1095 consecutive days, missing only one day, viz., November 30 last year, and to all appearances they will go on for a long time to come. I do not think that it has ever been known for *Pancratium*s to flower so freely and continuously as mine have done; no blooms being kept on the plants from day to day, but the plants cleared each morning. The plants do not seem to be weakened in the least by continuous flowering. *Henry Porter, Freshfield, Liverpool.*

SOCIETIES.

ROYAL HORTICULTURAL.

FEBRUARY 13.—A meeting of the committees of the Royal Horticultural Society was held on Tuesday last in the Drill Hall, James Street, Westminster, and on the same day in the Society's offices, in Victoria Street, took place the annual general meeting of Fellows. Generally, and especially was this the case last year, on the occasion of the annual general meeting, there is a large exhibition made in the Drill Hall, and the attendance of Fellows is above the average. On Tuesday last the weather prevented many exhibitors from coming, and in consequence the display, though better than we have seen since Christmas, was not an extensive one. The roadways in the suburbs were so slippery that vehicular traffic had been seriously inconvenienced, and during the night preceding the meeting the frost was very severe, 19° being registered in Kent, and 22° in Hampshire. The risk attending the exhibition of delicate plants in such weather is obvious.

Orchids suffered most probably from the weather, there being many fewer on this occasion than have been shown at recent meetings. This Committee recommended a First-class Certificate to *Odontoglossum crispum* Mundyannum, from NORMAN C. COOKSON, Esq.; and *Laelio-Cattleya Bertha Fournier*, from M. CH. MARON; and Botanical Certificates to *Zygopetalum Murrayanum*, from Mr. F. W. MOORE, Glasnevin Botanic Gardens; and to *Dendrobium macrophyllum*, from C. J. LUCAS, Esq.

No awards other than medals were made by the Floral

Committee, but there were magnificent groups of *Primulas*, *Cyclamens*, and *Clematis indivisa*.

The Fruit and Vegetable Committee recommended an Award of Merit to a variety of *Rhubarb* named *Daw's Champion*. Collections of one hundred dishes of Apples were shown by Messrs. GEO. BUNYARD & CO., Maidstone; and Mr. JNO. WATKINS, Pomona Farm, Hereford.

Floral Committee.

Present: Chas. E. Shea, Esq., in the Chair; and Messrs. C. T. Drury, H. B. May, D. Dean, Jas. Hudson, J. Jennings, Robt. Fife, C. R. Fielder, J. Fraser, W. Bain, Chas. Jeffries, Herbert J. Cutbush, J. W. Pawle, G. Reuthe, E. H. Jenkins, W. J. James, E. T. Cook, H. Turner, C. Blick, H. J. Jones, Ed. Mawley, J. F. McLeod, and W. Howe.

Mr. Marshall, Chairman of this Committee, was confined to his house, owing to indisposition.

Messrs. JOHN LAING & SONS, Forest Hill Nurseries, London, S.E., staged a group of miscellaneous plants, amongst which were noticed *Azalea indica* in bloom, *Oytia racemosa*, *Styphylea colchica*, *Erica*, &c.; also pretty *Palms*, *Codiaeums*, *Ferns*, *Cordylines*, and other decorative species (*Silver Banksian* Medal).

Cyclamens were finely shown by Mr. JOHN MAY, Gordon Nursery, St. Margarets, Twickenham. He had a large group of plants in 5-inch pots, all of the plants carrying extra-sized blooms of much substance. The colours were exceptionally bright, and included a great variety of tints. A capital strain (*Silver Flora* Medal).

Messrs. H. CANNELL & SONS, Swanley, had a display of Chinese *Primulas*, that more than furnished one side of a long table. All of the plants represented varieties of the "lady" or "star" section, and a very beautiful effect they produced. Every plant bore an abundance of flowers, being a pyramid of blooms generally a foot high, and the free habit of the strain is just the quality most admirable in a plant needed for decorative effect. Most of the varieties have dark coloured petals, and are more pleasing than others that have lost this characteristic through repeated crossings with the florists' *Primula*. The varieties included Mrs. R. W. Cannell, white, with yellow eye, dark petioles and foliage; Princess Eva, white, some of the flowers showing pale bluish, petioles and foliage nearly green; Queen of Roses, a very charming variety; Mrs. H. Cannell, white; Miss Irene, salmon-pink, foliage moderately dark in colour, a splendid advance upon "Pink Lady"; Fairy Queen, white, or pale bluish; Purple Star, and Lady Emily Dyke, white (*Silver Flora* Medal).

Mr. WILLIAM BULL, 536, King's Road, Chelsea, London, sent blooms of varieties of Chinese *Primulas*, similar to those remarked upon on p. 73.

Blooms and foliage of *Primulas* were contributed also by Col. PLATT, C.B., Coddinog, Llanfairfechan (gr., Mr. W. Coates). The varieties were all good ones, and included Cannell's Pink, Improved Holborn Blue, Princess May, Lady Sarah Wilson (pure white, with yellow eye), and Red-stem Queen.

Four well-grown plants of *Astilbe astilboides* were shown by Messrs. VAN WAVEREN & KUYFF, Sassenheim, Haarlem, Holland. Each was given a varietal name, but though the plants were excellent representatives of the species, we could not discover important variations between them.

Messrs. F. SANDER & CO., St. Albans, showed blooms of three varieties of *Camellia*. They were Lady Buller, a single flower of magnificent deep rose colour; Lady White, white, variously marked with scarlet; and Lady Roberts, semi-double, soft rose, with white margins to the petals.

From Sir T. LAWRENCE, Bart., Burford, Dorset (gr., Mr. Bain), were shown two excellent double-flowered varieties of *Begonia semperflorens*. *Boule de Neige* is a most effective plant, the flowers open deep crimson and pass to rose. *Triomphe de Lorraine* is white. They are both very beautiful.

The pretty little *Iris*s, *I. Bakeriana*, figured in *Gardeners' Chronicle*, March 8, 1890, p. 293, and *I. Danfordiae*, were shown in flower in pots by Messrs. WALLACE & CO., Kilnfield Gardens, Colchester.

Messrs. BARR & SONS, King Street, Covent Garden, exhibited a few hardy flowering plants in pots; such as *Narcissus minimus* and others, *Cyclamen sibiricum rubrum* and roseum. Also *Primula obconica grandiflora* in several shades, and a variety of *P. sinensis*, with small flowers of a charming rose colour, and named *Rose Beauty*.

Clematis indivisa is a capital plant to flower in the greenhouse early in the year without being forced. When given suitable conditions it flowers with prodigal freedom, and its blossoms are exceedingly pretty. For training up pillars or on rafters, a more profitable plant could hardly be selected. Messrs. W. PAUL & SON, Waltham Cross, Herts, exhibited about sixty plants of *C. indivisa*, and *C. I. lobata*. Though these were worked but about ten months ago, and were in 4-inch pots only, many of them bore more than three score flowers, pure white, with yellow stamens, and purple anthers. The plants were worked about April, and when they had made growth a few inches long, were placed in the open, completing their growth there. This is the best practice to adopt in the case of plants in pots, it being easier to keep them clean by such treatment. Mildew is the worst enemy to the plant (*Silver Flora* Medal).

Orchid Committee.

Present: J. Gurney Fowler, Esq., in the chair; and Messrs. J. O'Brien (Hon. Sec.), C. Maron (of Brunoy, France), de B. Crawshay, R. Brooman-White, H. A. Tracy, H. Little, J. T. Gabriel, H. J. Chapman, J. Wilson Potter, F. J. Thorne, E. Hill, H. T. Pitt, W. H. Young, T. W. Bond, C. Winn, and W. Cobb.

The weather being cold, the show of Orchids was small, and the greater part of the exhibits consisted of cut-flower spikes.

NORMAN C. COOKSON, Esq., Oakwood, Wylam (gr., Mr. Wm. Murray), showed two noble blotched *Odontoglossum crispum*, viz., *O. crispum* Cooksoni, with a massive pure white flower, the sepals bearing dark purplish-brown blotches, and the petals similar, but with smaller spots, the same colour also marking the lip. The flower was 4 inches across. The sepals were 1 inch wide, and the petals 1½ inch. It had previously had a First-class Certificate. The other, *O. c. Mundyannum*, equalled it in size and beauty (see Awards). Mr. Cookson also showed spikes of the pure white *Calanthe* × *Sibyl*, and the delicate rose-coloured *C. × Phoebe*, as well as three forms of hybrid *Phalo-Calanthas*, varying in colour from bluish-white to purplish-rose.

M. CHAS. MARON, Brunoy, France, braved the bad weather, and brought over *Laelio-Cattleya* × *Bertha Fournier*, var. *splendida*, one of the largest and most gorgeously-tinted hybrids yet shown; also *Laelio-Cattleya* × *Ernesti pallida* (*Laelia flava* × *C. Percivaliana*), a paler form of the beautiful yellow hybrid previously shown by him, and which passed into Mr. Norman Cookson's collection. The flowers were of a soft cowlip-yellow with chocolate-purple markings in the centre of the lip.

Captain HORROD, Westonbirt, Tetbury (gr., Mr. A. Chapman), sent *Cattleya Trianae*, Westonbirt variety, a perfectly-shaped flower, of a light lilac-rose tint, the front of the lip being of an intense crimson-purple; also flowers of *Cypripedium* × *Calypso*, Oakwood variety, and *C. × Calypso*, Westonbirt var., both very handsome; *C. × Cyria*, and *C. × Mons. de Curte*, resembling a fine form of *C. × nitens*.

J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr., Mr. Davis), sent *Cattleya* × *Miranda* (amethystoglossa × *Trianae*), a very pretty hybrid with pink flowers, having the segments marked with rose-purple; *Cattleya Trianae*, Glebelands var., fine in shape, and with a very richly-coloured lip; *Cypripedium* × *Woodfordiense* (Beechense × *Charlesworthii*), of the same general appearance of others of the *Charlesworthii* crosses; and *C. × Chamber-Leanum*.

WALTER COBB, Esq., Dulcote, Tunbridge Wells (gr., Mr. J. Howes), showed as *Cypripedium* × *Basano* (insigne × *i. Chantini*) a showy *Cypripedium*, apparently a good *C. × nitens*. If the reputed parentage be correct it would still be *C. insignis*. Mr. Cobb also showed fine spikes of *Laelia anceps Stella* and *L. a. Sunderiana*.

Messrs. LINDEN, l'Horticulture Coloniale, Brussels, sent *Odontoglossum* × *Ruckerianum* rubiginosum, a showy and singular form, with much resemblance to *O. × mulus*. Flowers yellow, profusely marked with red. Also *O. crispum* Goliath, a fine white flower, with a tinge of pink; and *Cypripedium* × *Schusterianum* (villosum × *Hookerianum* Volanteum). The large glossy flower had the colour of *C. villosum* aureum but was rounder in the labellum, and with a larger dorsal sepal.

C. J. LUCAS, Esq., Warnham Court, Horsham (gr., Mr. Duncan), sent *Cypripedium Lathamianum* Warnham Court variety, and *Dendrobium macrophyllum* Richardi.

Messrs. HEATH & SON, Cheltenham, showed a fine pan of the pretty white *Dendrobium barbatulum*, *Cypripedium* × *Lathamianum* giganteum, and a curious form of *C. insignis*.

FRANK A. REHDER, Esq., The Avenue, Gipsy Hill (gr., Mr. Norris), showed *Cypripedium* × *Favager* (*Charlesworthii* × *concinnum*). Upper sepals rose at the base, white above, with chocolate lines; petals and lip suffused with dark purplish-brown.

R. BROOMAN-WHITE, Esq., Ardarauch, Dumbartonshire (gr., Mr. J. King), showed a number of grand spikes of *Odontoglossum*, including a singular form of *O. triumphans*, three forms of *O. Andersonianum*, and several good *O. crispum* and *O. Inteo-purpureum*.

C. L. N. INGRAM, Esq., Godalming (gr., Mr. T. W. Bond), showed *Cypripedium* × *The Gem* (*Calypso* × *Leeanum*).

Awards.

FIRST-CLASS CERTIFICATES.

Odontoglossum crispum Mundyannum, from NORMAN C. COOKSON, Esq., Oakwood, Wylam (gr., Mr. William Murray).—A noble form of the *O. c. Franz Masereel* class, but with larger and better shaped flowers. The ground colour was white, tinged with rose, the greater part of the surface of the broad sepals and petals being occupied by large chestnut-coloured blotches, which in most cases were confluent. The fine lip had a yellow crest, with chestnut blotches on the front lobe, all the segments having a well-defined bluish-white margin.

Laelio-Cattleya × *Bertha Fournier* var. *splendida*, from M. CHAS. MARON, Brunoy, France. One of the finest of the large richly-coloured hybrids; it was obtained by crossing *L.-C. × elegans* and *Cattleya Dowiana aurea*, the present variety being far in advance of others previously flowered. Sepals and petals of a warm rose tint, with a freckling of cream-white showing between the veining. Lip broad, elongated, and wavy, of an intense ruby-crimson, with gold lines radiating from the base. It had the sweet odour of *C. aurea*. A vote of thanks to the exhibitor was also recorded.

BOTANICAL CERTIFICATES.

Zygopetalum Murrayanum, from the Royal Botanic Gardens Glasnevin, Dublin. A singular species, with spikes of rather small greenish flowers with some purple markings.

Dendrobium macrophyllum Richardi, from C. J. LUCAS, Esq., Warnham Court, Horsham. A curious form, with pale greenish flowers, having fine purple lines on the side lobes of the lip, and other obscure purplish markings on the front lobe.

Fruit and Vegetable Committee.

Present: Philip Crowley, Esq., Chairman, and Messrs. Jos. Cheal, W. Poupert, H. Markham, Jas. H. Veitch, W. Pope, Geo. Kelf, Alex. Dean, S. Mortimer, W. Bates, Geo. Wythes, H. Somers Rivers, F. Q. Lane, Ed. Beckett, Geo. Bunyard, A. H. Pearson, and Rev. W. Wilks.

Mr. W. POUPERT, Marsh Farm, Twickenham, showed excellent samples of four varieties of Rhubarb, including Victoria, Daw's Champion, Lindens, and Hawke's Champagne. Also fine heads of Beakale and Asparagus.

Messrs. Geo. BUNYARD & Co., Maidstone, exhibited such a collection of Apples in 100 varieties that it would be difficult to praise too highly. The fruits represented the very best of late Apples for kitchen use or for dessert, and they were as fresh, plump, and bright in appearance as we should expect to see them in October. We specially noticed fine samples of Hambling's Seedling, Lady Henniker, Bow Hill, Annie Elizabeth, Blenheim Orange, Lord Derby, Gloria Mundi (very large), Gascoigne's Scarlet Seedling, Cox's Orange Pippin, King's Acre Pippin, Claygate Pearmain, Sandringham, Warner's King, Belle de Pontoise, Golden Noble, Bismarck, Royal Jubilee, and Catillac Pear (Silver Knightian Medal).

Mr. JNO. WATKINS, Pomona Farm, Hereford, made an exhibit of 100 dishes of Apples, including fifty varieties of kitchen and the same number of dessert fruits. The fruits were remarkable for high colour and moderate size. Most of the best late varieties in either section were included in the collection, and a few local sorts that the Herefordshire folk prize greatly. Amongst the latter were Stoke Edith Pippin and Cowarne Queening, both dessert varieties; Stoke Edith Pippin in appearance resembles King of the Pippins, but is apparently a better keeper. Cowarne Queening has probably been cultivated in Herefordshire for generations; it has a nice brisk flavour, and comes into use from October until January (Silver Knightian Medal).

Several varieties of Apples were submitted for Certificates, but none were recommended. Messrs. H. LANE & SON, Berkhamsted, showed Red Blenheim; Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, McIndoe's Bussat.

From F. W. CAMPION, Esq. (gr., Mr. J. Pitt), were shown excellent samples of Sutton's Perfection Asparagus (Cultural Commendation).

Awards.

Rhubarb Daw's Champion.—This is a variety obtained from a cross between Victoria and Champagne, and is said to come into use as early as Champagne, whilst in other respects it is much finer than that variety. The large, handsome, bright red-coloured specimens shown not only recommended the variety as a superior one, but were illustrative of high cultivation. From Mr. J. POUPERT, Twickenham (Award of Merit).

The Annual Meeting of Fellows.

At 3 o'clock in the afternoon, the annual general meeting of the Fellows of the Society was held in the Lindley Library. Sir Trevor Lawrence, Bart., President, was in the Chair, and most of the members of the Council were present, in addition to a moderate company of Fellows.

The minutes of the last annual general meeting, and of the special general meeting held in July having been read and adopted, a vote of thanks was passed on the proposition of Mr. Geo. Bunyard to the retiring members of the Council, Sir John T. D. Llewelyn, Bart., M.P., and R. McLachlan, Esq., F.R.S. Owing to the lamented death of Mr. Sydney Courtauld, there were thus three vacancies upon the Council to be filled, and no other gentlemen having been put forward but those nominated by the Council, these were elected. They are F. du Cane Godman, Esq., F.R.S., Sir John T. D. Llewelyn, Bart., and Arthur Wm. Sutton, Esq., V.M.H.

Sir Trevor Lawrence, in moving the adoption of the Report commented at some length upon the more interesting of its features. The Lindley Library had been given some attention, and acting on a suggestion of Mr. H. J. Elwes, the whole of the books have been enclosed in glass-fronted cases for the purposes of preservation and cleanliness. The services of Mr. S. T. Wright as superintendent at Chiswick were acknowledged in grateful terms. His able direction of the work in the gardens was as satisfactory as the influence for good he has exercised upon the students there. Congratulatory references to the Drill Hall meetings, to the Temple Show, and the Fruit Show held at the Crystal Palace were naturally received with pleasure. All were successful. Sir Trevor pointedly drew attention to the fact that the Awards made by the Society's committees during the past year, actually exceeded in number those made in 1898. It will be remembered that the Council a year ago suggested that the value of such awards might be diminished if too great a number be granted.

The Hybridisation Conference looked at from all points of view, said Sir Trevor, was a satisfactory event. In speaking of the number of foreign visitors present on that occasion, a touching reference was made to the subsequent decease of M. Henri de Vilmorin. The report of the proceedings of that Conference had been delayed through circumstances not under the control of the Society; many of the papers to be published had to be revised by authors upon the Continent and in America. The examinations held by the Society had been satisfactory. It was the desire of the Council to express their high sense of the Society's indebtedness to its Committees, the lecturers at its meetings, exhibitors, &c.

Coming to the paragraph in the Report which deals with the new Charter, Sir Trevor said the alteration had been made

in a very satisfactory manner, and so well advised were the Society, that the new Charter passed in the same form as it was submitted to Her Majesty. There now remains to be done the very serious work of drafting the new bye-laws that the new Charter renders necessary. This work had been deputed to a committee, and we understood the President to say that opportunities would be afforded the Fellows of discussing those which will be framed before they are actually adopted.

The Centenary of the Society's birth would take place in 1904, and, as stated in the Report, the Council has decided, after mature consideration, to celebrate that event by the purchase of a new Chiswick—a new experimental garden in a rural district that shall take the place of Chiswick, and probably by the establishment there of a horticultural college, and a thoroughly efficient method of giving theoretical and practical horticultural education. But Sir Trevor Lawrence had not any further information to give the meeting. Negotiations are now in progress, and at present the Council is not disposed to divulge how far these have progressed. Then Sir Trevor congratulated the Society upon its increased number of Fellows, now more numerous than at any other time in its history. From a financial point of view, there were equal grounds for satisfaction, the statement of accounts published with the report, showed a surplus upon the year's working of £1,751 8s. 9d. This is a larger surplus than has ever occurred in any one year. It will be reduced to some extent, however, by the publication of the proceedings of the Hybridisation Conference. Sir Trevor in conclusion, thanked the Council for the help they had given him, the Treasurer, Auditors, and Secretary, and spoke in the highest terms of the services of the Rev. W. Wilks, M.A., Secretary.

Professor Henslow, V.M.H., in seconding the adoption of the report, said that he did so, believing that in all respects it was most satisfactory. The council had held out to them a prospect of work that will greatly enhance the usefulness of the Society. After some remarks by another gentleman, Mr. J. Cheal said that the report showed an advance in almost everything. It seemed to him that the Society was turning over a leaf, commencing a new life, with a new charter. It had flourished because the management had dissociated itself from things outside horticulture. He had no fault to find with the Council in respect to the painting of Orchid pictures, but respectfully suggested that a little of the large surplus of money might be used for the provision of coloured pictures of the most noteworthy plants and flowers submitted before the other committees.

Subsequently Sir T. Lawrence explained that when the Council commenced the work in the case of Orchids it was done on the understanding that the committee paid half the cost and the Council the other half, but latterly the Council has paid it all. They had had a meeting, however, that morning, and it was decided that if the work was to be continued it must be upon the conditions originally agreed upon. Replying to a question from Mr. Geo. Paul, the president said that the Council was distinctly of the opinion that respecting the new Chiswick to be acquired, the society should become proprietors of the land.

Mr. R. Dean suggested that a little of the surplus revenue might be used to provide a lunch for the members of the Floral Committee upon the occasion of the Temple Show, and drew a melancholy picture of the sufferings of these hardy-treated gentlemen, in contrast to the fortunate persons selected as judges. The judges are provided with a free luncheon.

Sir Trevor said that the Council would no doubt consider the matter, but if it was decided to give a lunch to the Floral Committee it would not show greater appreciation of their services by the Council, who already recognised their indebtedness to the committee.

The report was adopted unanimously. Sir Trevor Lawrence, Philip Crowley, Esq., and the Rev. W. Wilks, M.A., were then re-elected President, Treasurer, and Secretary respectively.

It was unanimously resolved, upon the motion of Mr. Geo. Bunyard, that a vote of congratulation be sent to Sir Michael Foster, M.P., upon his election to the important position of representative in Parliament of the London University. A vote of thanks to the President concluded the proceedings.

Obituary.

W. H. LUMSDEN, F.R.H.S.—We regret to announce the death of Mr. W. H. Lumsden, F.R.H.S., of Balmedie, Aberdeenshire, on Wednesday, February 7, at the age of 48 years. The deceased had been in failing health for some months, but had only been confined to his room between two and three weeks. Mr. Lumsden was a keen horticulturist, and possessed one of the largest collections of Orchids in the North.

WILLIAM DIVERS.—We regret to have to chronicle the death, on February 12, of Mr. William Divers, in the 91st year of his age, at Noath Cottage, Linton, near Maidstone. He was gardener to the late W. Moore, Esq., of Wierton House, near Maidstone, for upwards of forty years, and relinquished his situation on the death of that gentleman in 1894. At the Maidstone, and other local exhibitions, he was well known as a successful exhibitor of Roses, Hardy Fruits, &c., and for many years he was an occasional contributor to the columns of the *Gardeners' Chronicle*. W. H. D.

TRADE NOTE.

MR. JOHN KING, COGGESHALL, ESSEX, &c.

WE regret to state that four days previous to the intended issue of Mr. King's Farm Seed Catalogue for 1900, the works of his printers, Messrs. Petty & Sons, Ltd., at Reading, were totally destroyed by fire, including the whole of the catalogues, chromo lithographs, process blocks, &c. He has arranged for its immediate reproduction, and hopes to have the new edition out in the course of a week or two.



METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period February 4 to February 10, 1900. Height above sea-level 24 feet.

1900.		DIRECTION OF WIND.	TEMPERATURE OF THE AIR.					TEMPERATURE OF THE SOIL AT 9 A.M.					RAINFALL.	LOWEST TEMPERATURE ON GRASS.
FEBRUARY 4 TO FEBRUARY 10.	At 9 A.M.		Day.	Night.	At 1-foot deep.		At 2-foot deep.	At 4-foot deep.						
	Dry Bulb.				Wet Bulb.	Highest.			Lowest.					
SUN.	4	N.N.W.	34.2	33.0	36.3	33.1	...	36.9	40.2	43.9	31.5	...		
MON.	5	N.N.E.	33.0	33.9	37.1	31.8	...	36.6	39.8	43.6	28.4	...		
TUES.	6	N.N.E.	34.5	31.6	39.1	34.0	...	36.8	39.8	43.4	30.3	...		
WED.	7	N.N.E.	28.4	26.1	34.9	24.9	...	36.1	39.5	43.2	15.9	...		
THU.	8	N.N.E.	25.0	23.8	33.9	19.2	...	35.3	39.2	43.1	9.0	...		
FRI.	9	E.N.E.	18.3	18.1	31.1	15.7	...	34.8	39.1	42.9	8.1	...		
SAT.	10	E.S.E.	27.8	26.7	36.5	16.8	0.40	34.2	38.6	42.9	7.5	...		
MEANS...		...	29.0	27.7	35.6	25.1	0.40	35.8	39.5	43.8	18.5	...		

Remarks.—The temperature has been very low, with cold, north-easterly winds; and snow fell to the depth of 4 inches on the evening of the 10th inst.

MARKETS.

COVENT GARDEN, FEBRUARY 15.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

OUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES

	s. d. s. d.		s. d. s. d.
Arum Lilies, dozen blooms ...	5 0-8 0	Mignonette, dozen bunches ...	4 0-6 0
Asparagus "Fern," bunch ...	2 0-2 6	Narcissus (yellow), doz. bunches ...	3 0-6 0
Carnations, per doz. blooms ...	1 6-2 6	— (double) doz. bch. ...	3 0-7 0
Cattleyas, per dozen ...	15 0-18 0	— (white) doz. ...	4 0-7 0
Chucharis, per dozen ...	6 0-8 0	Odontoglossum, per dozen ...	4 6-9 6
Gardenias, per doz. ...	8 0-6 0	Roman Hyacinths, doz. bunches ...	5 0-9 0
Lilac, white, bunch ...	3 6-6 0	Roses, Red, per doz. ...	10 0-15 6
Lilium Harrisii, per dozen blooms ...	6 0-10 0	— Tea, white, per dozen ...	8 6-7 6
Lilium longiflorum, per dozen ...	12 0-16 0	— Yellow, Perles, per doz. ...	8 6-7 6
— lancifolium album, per dozen ...	6 0-4 0	— Safrano, per doz. ...	2 6-3 6
— lancifolium rubrum, per doz. ...	8 0-4 0	Smilax, per bunch ...	2 0-3 0
Lily of the Valley, per doz. bunches ...	5 0-10 0	Tuberose, per doz. blooms ...	0 9-1 0
Maidenhair Fern, per doz. bunches ...	4 0-6 0	Tulips, per bunch ...	1 0-2 6
Marguerites, p. doz. bunches ...	8 0-4 0	Violets, Parma, per bunch ...	3 0-5 0
		— dark (French), per doz. bch. ...	1 0-3 6

FRUIT.—AVERAGE WHOLESALE PRICES

a. d. s. d.	a. d. s. d.
Apples, in sieves:	
— Benings, behl.	4 0 5 0
— Blenheim, per bushel	4 0 5 0
— Northern	
— Greenings, per bushel	3 6 4 6
— Queensings, bus.	4 0 6 0
— Wellingtons, bushel	5 0 7 0
— Various, bushel	2 6 5 0
— Nova Scotia, various, barrel	12 0 22 6
— Baldwin, barrel	12 0 18 0
— Greenings, barrel	13 0 18 0
— Golden Russets, barrel	21 0 22 0
— N. Spies, barrel	16 0 18 0
— Californian, cases, New Town	0 0 10 6
— Canadian, barrels	13 0 18 0
— Bananas, per bunch	4 0 8 0
— Chestnuts, Spanish	15 0
— Cobnuts, per lb.	0 8 0 9
— Cranberries, case	7 0 8 0
— American, per qt.	0 4
— Russian, kegs	1 9

VEGETABLES.—AVERAGE WHOLESALE PRICES

a. d. s. d.	a. d. s. d.
Artichokes, Globe, per doz.	3 0
— Jerusalem, per sieve	1 0
— Stachys or Chinese, per lb.	0 4 0 5
Asparagus, Spruce, per bundle	1 0
— English forced, per bundle	6 0 8 0
— Giant, bundle	12 0 17 6
— Paris, Green, per bundle	6 6
— Spanish, bnd.	2 6
Beans, Channel Islands, per lb.	2 0 2 6
— Madeira, basket	3 0 3 6
Beetroot, new, per dozen	0 6 1 0
— in bush	1 2 2 0
Broccoli, Cornish, crates	6 0 10 0
Brussels Sprouts, p. sieve	2 0 3 0
— per bushel	3 0 5 6
Brussels Sprouts, Tops, per bush.	1 6 2 0
Cabbage, tally	5 0 6 0
— dozen	1 3 1 6
— Savoy, p. tally	4 0 12 0
Carrots, English, p. dozen bunches	3 0 3 6
— good, cwt. bags, washed	4 0 4 6
Cauliflowers, dozen	1 0 3 0
— Cornish crates	5 0 10 0
— Italian, baskets of 18	3 0 5 0
Celeriac, per dozen	4 0
Celery, red, roll doz.	8 0 18 0
Chicory, per lb.	0 3
Colewort, p. bush.	2 0 2 6
Oreos, doz. punnets	1 0
Cucumbers, doz.	4 0 10 0
Endive, new French, per dozen	1 0
— Batavian, doz.	1 0
Garlic, new, per lb.	0 8
— per cwt.	16 0
Horseradish, English, bundle	1 6 2 0
— foreign, per bundle	1 0 1 2
Leeks, doz. bunches	2 6 4 0
Lettuce, French, Cabbage, dozen	0 6 0 10

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES

a. d. s. d.	a. d. s. d.
Adiantum, p. doz.	5 0 7 0
Arbor-vitæ, var. doz.	6 0 36 0
Aspidistra, p. doz.	18 0 36 0
— specimen, each	5 0 10 6
Crotons, per doz.	18 0 30 0
Dracenas, var. doz.	12 0 30 0
— viridis, per doz.	9 0 18 0
Ericas, var. per doz.	18 0 36 0
Eunonymus, various, per dozen	6 0 18 0
Evergreens, var., per dozen	4 0 18 0
Ferns, small, per 100	4 0 6 0
Ferns, in variety, per dozen	4 0 18 0
Ficus elastica, each	1 6 7 6

POTATOES

Main Crop, &c., 70s. to 90s.; Dunbar, 110s.; Other varieties, 65s. to 85s.; Seed Potatoes from 4s. 6d. to 7s. per cwt. John Bath, 32 & 34, Wellington Street, Current Garden.

REMARKS.—The Seville (bitter) Oranges for marmalade wine, &c., are now on sale. Savoyas are now small, the season being nearly over. They have realised good prices all through the season. Parsley has advanced in price, and the severe weather caused a limited supply on Tuesday; also of bunched Turnips and Carrots. Cape fruit include Peaches, in cases of 20 or 24, 12s. to 13s.; Plums, per case of 30 to 40, 3s. 6d. to 6s.; Nectarines, per case of 48, 10s. These Plums handle flaccid and soft. Some of the Burbanks are in shape like Washingtons.

FRUIT AND VEGETABLES

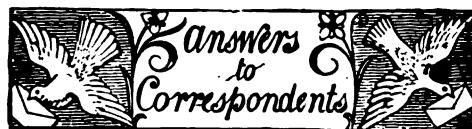
GLASGOW: February 14.—The following are the prices since our last:—Apples, Canadian; Baldwins, 15s. to 20s. per barrel; Northern, Spy, 16s. to 20s. do.; Greenings, 15s. to 18s. do.; American-Californian Pippins, and Newtowns, 9s. to 12s. per box; Grapes, English, 2s. to 3s. 6d. per lb.; do., foreign, Almeida, 12s. to 16s. per barrel; best, do., 20s. to 30s. do.; Bananas, extras, 9s. to 10s. per bunch; No. 1, 8s. to 9s. do.; No. 2, 6s. to 7s. do.; other and inferior, from 2s. 6d. to 5s. do.; Oranges, Murcia, 6s. to 8s. per half case Valencia, ordinary, 420's, 8s. to 9s. per box; large, 9s. to 10s. do.; extra large, 10s.; extra-extra large, 11s. to 12s. do.; Jumbos, 14s. to 15s. do.; 714's, 10s. to 12s. do.; Seville Bitter 10s. per half chest; Palermo, do., 5s. to 6s. per box; Lemons, Palermo, 8s. to 10s. per case; Mushrooms, 1s. per lb.; Tomatos, Teneriffe, deeps, 4s. 6d. to 6s.; cases, 7s. to 8s. 6d.; Onions, foreign, Valencia, 4 in a row, 6s. 6d. to 7s.; 5 in a row, 7s. 6d. to 8s.; Turnips, Swedes, 1s. 8d. to 2s. per cwt.; Carrots, 3s. 6d. to 4s. do.; Parsley, 10d. to 1s. per dozen bunches; Cauliflowers, 1s. 8d. to 2s. 2d. per dozen; Cabbages, 9d. to 1s. 2d. do.; Celery, 6d. to 1s. 2d. do.

LIVERPOOL: February 14.—Wholesale Vegetable Market.—Potatoes, per cwt., Lynn Greys, 3s. 3d. to 3s. 6d.; Main Crop, 3s. 6d. to 4s. 6d.; Bruce, 3s. 6d. to 4s.; Champions, 3s. 6d. to 4s. 6d.; Turnips, Swede, 1s. 8d. to 2s. per cwt.; Parsley, 10d. to 1s. per dozen bunches; Onions, foreign, 3s. 9d. to 5s. per cwt.; Cauliflowers, 1s. 9d. to 2s. 3d. per dozen; Cabbages, 10d. to 1s. 3d. do.; Celery, 6d. to 1s. 2d. do. St. John's.—Potatoes, 1s. per peck; do. new, 4d. per lb.; Grapes, English, 3s. do.; Pines, English, 5s. each; Cobnuts, 1s. per lb.; Cucumbers, 1s. each; Mushrooms, 1s. 6d. per lb. and basket. Birkenhead.—Potatoes, 1s. per peck; Cucumbers, 1s. each; Filberts, 10s. per lb.; Grapes, English, 1s. 6d. to 2s. do.; do., foreign, 4d. to 8d. do.; Pines, English, 4s. to 8s. each; Mushrooms, 1s. to 1s. 6d. per lb.

CORN.

AVERAGE PRICES OF British Corn (per imperial qr.), for the week ending February 10, and for the corresponding period of 1899, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1899.	1900.	Difference.
	s. d.	s. d.	s. d.
Wheat	26 8	25 10	— 0 10
Barley	27 2	25 3	— 1 11
Oats	17 0	16 5	— 0 7



ADDRESS WANTED.—If this should meet the eye of the writer of "Sussex Fruits" in the *Gardeners' Chronicle*, he would oblige by kindly sending his present address to the Editor of this Journal.

AN INFESTATION OF CONSERVATORIES BY SPARROWS: *M. W. F.* Put nets over the ventilators, or trap the birds in nets. They might succumb to XL All vapour: it would at least stupify them, when it would be an easy matter to collect them; or worst of all means, lay down poisoned grain, if nothing else avails to banish them.

BOOKS: *Manual on Land Measurement*. Bath. You would obtain a suitable manual at Mr. Upcott Gill's Bazaar Office, at small cost.—*J. G. B.* *Economic Entomology* is published by Messrs. Chapman & Hall. Messrs. L. Reeve & Co. are the publishers of H. T. Stainton's *British Butterflies and Moths*, illustrated, price 10s. 6d.; *British Beetles*, by E. C. Rye, illustrated, 10s. 6d.; and some elementary works of a cheaper kind.—*G. Stratford*. Messrs. Cannell & Sons, Home of Flowers, Swanley, Kent, publish an illustrated work on carpet bedding. *A Subscriber*. *Handy Book of Bees*, by A. Pettigrew, fourth edition (W. Blackwood & Sons, publishers, London). For other bee manuals, inquire of Mr. Upcott Gill, Bazaar Office, 170, Strand, W.C. Bee journals are—*Bee-keepers' Record* (monthly), and *British Bee Journal* (weekly).

CARNATION DISEASED: *G. S.* and *Others*. The fungus attacking the "grass" in circular patches is *Helminthosporium echinulatum*. In mild cases use sulphide of potassium, 2 oz. in 1 gallon of rain; and in bad ones burn the entire plant forthwith.

CREEPERS COVERING THE SOUTH-EAST SIDE OF A MANSION: *A. B.* *Aristolochia Sipho*, *Ribes* (*Grossularia*) *fuchsioides*, *Clematis Jackmani*, *C. lanuginosa*, and varieties of these sections; *Magnolia grandiflora*, *M. conspicua*, *M. Lennei* or *M. Halliana*, *Bignonia capreolata*, or *B. radicans*.

DAHLIA LITERATURE: *B. C. R.* We might add to the number of books treating of *The Dahlia*, mentioned in our last issue, a work by Mr. R. Dean, R. Fife, and others, published by Macmillan & Co., Ltd., London.

IRON-IMPREGNATED SOIL: *J. C. & S.* Unless the iron be in excess it would not be injurious to trees, &c. Usually the iron-stone lies at some depth, and providing the drainage is good, such soil is not inimical to plant-growth. We have remarked good hedgerow and other timber, together with farm crops, doing well in Leicestershire on land 4 to 6 feet deep, overlying thick beds of iron-stone. The nature of the vegetation now growing on the land should afford you an idea of its capabilities.

LIFE OF JOHN C. LOUDON: *J. H. D.* Mrs. Loudon published an account of the life and writings of J. C. Loudon, which might be procured at some second-hand bookellers.

MARKET VINERIES: *Vitis*. Shelter and aspect, and other essentials, being equal or nearly so, we would advise the buildings to be erected on the pasture land, the turf forming the best kind of soil for the Vine. In any case you must make the drainage of the land as good as possible, and elevate the borders somewhat above the general level of the land. All the turf excavated for roads, &c., should be stacked, and the stacks kept free of herbage. It will come in for future use in border making, potting, &c.

NAMES OF FRUITS: *A. & Co.* 1, Irish Reinette; 2, Dutch Mignonne; 3, Nelson Codlin.—*J. H.* 1, Winter Codlin; 2, a small example of Harvey's Wiltshire Defiance; 3, Round Winter Nonpareil; 4, Martin Nonpareil.—*J. R.* 4, Ashmead's Kernel; 5, Barcelona Pearmain.—*C. W. S.* We can only suggest that your Apple may be the old Seek-no-Further. The specimens sent agree with that variety in several characters.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*S. G.*, *Wimbleton*. 1, *Adiantum Waltoni diffusum*; 2, *Blechnum occidentale*; 3, *Selaginella Wildevoni*; 4, *Dendrobium infundibulum*; 5, *Bilbergia nutans*; 6, *Adiantum bispiculatum*.—*G. S. W.* *Cypripedium villosum*.—*Oxon*. *Dendrobium speciosum*.—*C. de B.* A very interesting series of varieties of *Odontoglossum Inseayi* of the class called *O. Inseayi leopardinum*.—*W. P.* A fine form of *Dendrobium nobile*, but not specially named.

PILLAR ROSES: *A. B.* *Félicité-Perpétue*, *Madame Desprez*, *Rosa capreolata* (Ayrshire), *Lord Penzance's Briars*, *A. K. Richardson*, *Felleberg Noisette*, *Rosa Polyantha*, *The Boursalt* (*Rosa Alpina*) *Roses*, viz., *Amadis*, *gracilis*, *splendens*; the climbing *Devoniensis*, some of the hybrid *Bourbon* section are vigorous growers and very suitable, viz., *Chénédole*, *Coup d'Hébé*, *fulgens*, *Madame Plantier*, and *Paul Verdier*. Let the iron chains be painted green or bronze; galvanised chains are not good for plants.

COMMUNICATIONS RECEIVED.—Reading Gardeners' Society.—*R. D.*—*A. O. N.*—*J. K. K.*—*J. B.*—*B. Wadda*—*G. Waller*, Secretary, Yorkshire Gala.—*A. P.*—*L. A. L.*—*O. E.*—*The Orchard Co.*, Carlisle.—*J. L.*—*H. D.*—*A. H.*—*L. G. R.*—*E. M.*—*C. H.*—*E. C.*—*D. B.*—*A. Whitelaw*—*R. J. A.*—*W. K.*—*Attwood & Co.*—*J. Carter & Co.*—*W. A. G.*—*E. J.*—*A. D.*—*Rev. G. H.*—*A. W.*—*W. A. C.*—*M. T.*—*G. W.*—*J. S.*—*Harrison Weir*—*D. T. F.*—*A. O'N.*

Continued Increase in the Circulation of the "GARDENERS' CHRONICLE."

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

TREBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, and ALL CLASSES OF GARDENERS' AND GARDEN-LOVERS at home, that it has a specially large FOREIGN and COLONIAL CIRCULATION, and that it is preserved for reference in all the principal libraries.



THE Gardeners' Chronicle

No. 687.—SATURDAY, FEB. 24, 1900.

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SUPPLEMENTARY ILLUSTRATION.

Encephalartos Hildebrandtii, at Kew.

ROSE SHOWS OF THE FUTURE.

THERE have been "searchings of heart" in reference to Rose exhibitions: these have taken two directions, first of all the more artistic arrangement of exhibition flowers; and secondly, the difficulty which has apparently arisen with regard to the chief classes in the amateurs' division at the Metropolitan Show of the National Rose Society. This latter subject has been taken in hand in the pages of a contemporary by Mr. Charles J. Grahame in a thoughtful and practical paper, and his ideas are contained in the following sentences: "It is in order that there should be encouragement for such competition in the future that I now write, as I fear that if the highest prizes continue to go year after year to a few (a very limited few it is at present), the result may be that when those who are now almost always champions cease to exhibit, there will be no successors worthy of the name." There is no doubt that this is a difficulty. During the last few years the trophy has been carried off by three exhibitors; from 1890 to 1899 it was carried off by one exhibitor eight times, and by two others once each. One of these had since passed away, so that the prospect of a good competition is very slight. Yet I can remember the time when it was carried off by growers who had not anything like so extensive a Rose-garden as that of the present champion; and I think it is just possible that such growers have been deterred by the fact

that the first and second prizes are placed beyond their reach; while one other exhibitor at any rate (Mr. Machin) lives in the North Midlands, and consequently he can never get his Roses in good exhibition form as early as the metropolitan show at the Crystal Palace. But it may be said, cannot others take the place of those who have retired? Cannot they move up into some of the next classes, and compete for the championship? Yes; but in the present advanced state of Rose-growing, this requires considerable effort, and there must be at the same time a garden sufficiently large, and I would add, a pocket sufficiently deep, to enable them to grow such a quantity as that they might compete successfully.

With regard to Mr. Grahame's change, by means of which the owners of the Challenge Trophy for the last few years are to be excluded from competing: there is, I think, one very strong objection to it, and that is, that it would not be a Champion Trophy at all then, and the honour and glory of winning it would be greatly diminished. For instance, what would be said of the St. Leger race at Doncaster if the winners of the Derby and the Two Thousand Guineas were to be "scratched"? Surely the winner would not be so proud a man as he would legitimately be if he had had all the available horses against him, and yet had won the race. It is, in truth, a very difficult matter on which to decide. Time, which makes so great a difference in everything, may cut the knot.

I think it would be a most desirable thing if we could get a larger number of exhibitors in these classes; it may be true, that with so large a number of Roses we are sure to get some "tail," but also it must be remembered that it gives the opportunity for setting up Roses which, perhaps, we should not see elsewhere—though I am inclined to believe with Mr. Grahame, that a box of twenty-four or thirty-six is more pleasing than the very large exhibits. It does not seem to me, however, that the public think so, for it is over them that they most delight to linger and take their notes.

In regard to the other matter to which I have alluded, the more artistic arrangement of exhibitors' flowers, by which I mean those which are generally shown from amongst the Hybrid Perpetuals, Hybrid Teas, and Teas, I here again see great difficulties. It is most probable that if it were adopted, and Roses were exhibited in the way in which Mr. George Mount, of Canterbury, shows his splendid blooms cut with long stems, there would be considerable difficulty in adjudicating, and it must be remembered that all his flowers are grown under glass, and therefore are not interfered with by bad weather. If it were a very fine season, so that the outside petals of the blooms were not interfered with by either wind or rain, they might show very well; but supposing it were a bad season, a season like 1879, when the outer petals (especially of Teas) were in nearly all cases discoloured, what a poor outcome there would be on the exhibition table! and therefore in trying conclusions on this matter, I do not think we are to judge by an especially good season, but should take into account the many indifferent ones we are subjected to in our fickle climate. We remember the Rose shows of the past, and what a marvellous change has been wrought, mainly due to the operations of the National Rose Society; it is not, then, too much to hope for that some way may be found of solving the difficulty, but if the present champion growers are excluded

from competition, might they not possibly say we will have nothing to do with the Rose Show if we are not allowed to compete as heretofore? I do not say that it would be so, but I think there is danger of its being so. In saying all this, I am far from wishing any obstacle to be thrown in the way of Mr. Grahame's proposed arrangement; and if the committee of the National determine that it should be so, I am sure the members of the Society will endeavour loyally to carry it out. As Mr. Grahame says, I was opposed in the first instance to the revolutionary change which he proposed before; but seeing the successful carrying out of the scheme, I endeavoured to give it my hearty support. I always felt, however, there was this danger, that when successful exhibitors had made a stand in the lower classes, they would not care to run the risk of advancing into a higher one. In all this I am regarding it simply in that light in which I think a great many people regard prize-taking—the money amount of the prizes for which they contend. I know that there are some people who decry this, and call it pot-hunting; but when we know the trouble and expense which an exhibitor incurs, I think it is only fair that he should try to recoup himself for some of the money which he has expended. Our Rose amateur exhibitors are not, as a rule, a wealthy class; and no one ought to grudge them a certain amount to repay them, without exposing them to the charge of being mercenary. [What about the unsuccessful ones? Ed.]. The love of Roses is a very delightful thing; but, after all, it will not, like other sentiments of the same nature, confer any material advantage. It is very desirable that a greater *esprit-de-corps* should be manifested amongst our exhibitors, and the honour and glory of the prize be more considered than the pecuniary remuneration. *Wild Rose.*

ORCHID NOTES AND GLEANINGS.

LINDENIA.

THE number which was published on January 30 of the present year contains coloured figures and descriptions of the following Orchids:—

EPIDENDRUM, or *BARKERIA ELEGANS*, t. DCLXXXI. A Mexican species, introduced by Ghiesbreght. The flowers are in loose racemes, each about 2½ inches in diameter, with oblong, pointed white segments, lip projecting, keeled, white, with a deep purple spot. The column is bent downwards upon the lip.

CATTLEYA LODDIGESII var. *HARRISONIÆ* ALBA, t. DCLXXXII. A pure white form of *C. Harrisoniæ*, differing from *C. Loddigesii* in the frilling of the anterior part of the lip.

LÆLIA RUBESCENS, Lindl., t. DCLXXXIII. Flowers racemose, rosy-lilac, nearly 3 inches across; lip: *envy*: ute at the base, with a purple spot, anterior lobe broad y la: *colata*.

CATTLEYA LABIATA ALFREDIANA, t. DCLXXXIV. A form with the segments of a rich vinous purple, irregularly streaked and blotched with white.

VEGETATION OF GERMAN SOUTH-WEST AFRICA.

AN UNVISITED TRACT.—I am sending you a few lines about a part of this country, which scientific travellers have never before visited. I mean the southern border of the Etosa basin. It was in the second half of June when I heard that two farmers of Grootfontein intended to start with ox-wagons for Pnamutoni, and to go therefrom along the Etosa basin over Okakuejo to Okaakana, in order to fetch from a short distance from the last-named locality a year's provision of salt for their cattle. As I had not anything more to do in Grootfontein—the vegetation being as dormant as in Europe in winter time—I decided quickly not to let such an opportunity escape, but to accompany the party,

although I could not hope to make in this dry winter season many new botanical discoveries, but perhaps a few in the geographical line.

Starting on June 28 from Grootfontein, we arrived the same evening at Jankbas, Mr. Erikson's farm, where I found in a swamp a flowering *Zanichellia* or *Ruppia* (I do not know the distinguishing characteristics of these genera). Through a wonderful park-like landscape, consisting chiefly of dark, red-fruited *Terminalia prunioides*, *Combretum primigenium*, *Acacia hebeclada*, scattered *Sclerocarya*, and *Tambotis* (as the Boers call it). This looks like a very straightly grown *Prunus Mahaleb*, the extremities of the slender hanging branchlets and the leaf-axils bear small catkins; the seeds are said to be able to move by the action of a larva buried within them. The milky juice of the bark and leaves are very poisonous. At Karnchas, where we outspanned on June 29, we met a number of bushmen, who smoked from a big horn of the Kudu antelope, "Dacha" (*Cannabis*). This is a custom, not originally in-

I found two yellow-flowering *Grewias*, *Grewia avellana*, six species of *Acacia*, eight species of *Acanthaceae*, *Boscia salicifolia* (Witgat of the Boers, of which the soft and sugary roots are used as a substitute for Coffee), *Boscia foetida* (which I called erroneously in my former article "The Fishriver," a *Celastrineae* called Stinkbush by the Boers), a very spiny *Celastrus*, two *Ficus* (one of them the majestic *F. damarensis*).

The leaves of the different *Combretums* were turned dry and yellow by the ascending heat of the bush fires, and had begun to push out young, tender twigs and flower-buds in the axils of the dead foliage. I am convinced that if the fires continue twenty years longer in this region, all the extensive forest districts will be destroyed. Every day we had to cross bush fires. The fires are mostly caused by bushmen, who start them on the grassy plains in order to find the edible bulbs and tubers of *Cyperus esculentus*, and of various *Asclepiadaceae*; from the plains it spreads, of course, into the forest.

where we took possession of the old empty store-house, which the soldiers built three years ago at the beginning of the rinderpest plague. It was then an important point of the rinderpest protection-line, that was formed between the Heroróland on one side, and Ovamboland and Bechuanaland on the other side, to keep a check on the traffic of cattle. The view from this house is very extensive, over an enormous absolutely flat, grassy plain, covered by black forest. The Etosa basin, is hidden behind a strip of forest land. The most interesting thing among the few that I collected at Onamutoni is a *Hydnora*, that grows on the roots of *Acacia hebeclada* (I found it first 10° more south, near Keetmanshoop, upon the roots of *A. horrida*). The fruits, situated four to six together, below the surface of the soil, are as large as good-sized Apples, and contain many thousands of seeds, which may be eaten, when perfectly ripe, even by Europeans; unripe, they contain a high percentage of tannic acid.

On July 20 we started from Onamutoni for

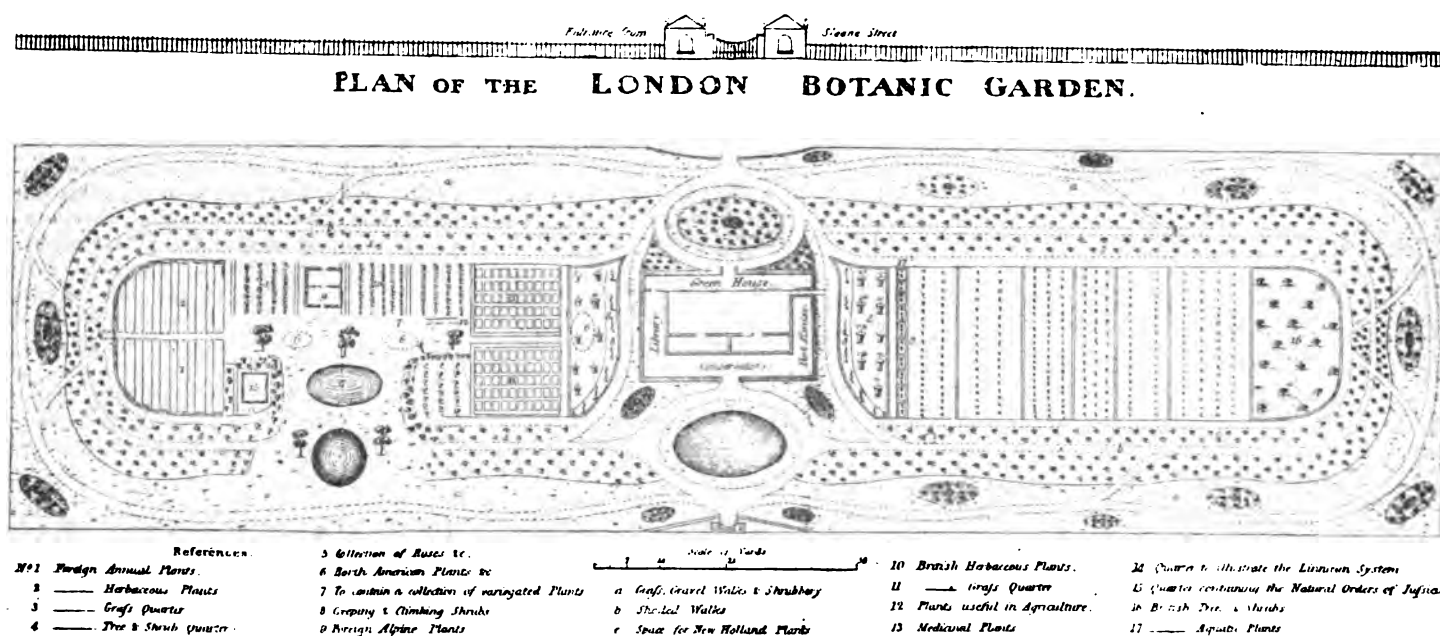


FIG. 34.—(See our issue for February 3, 1900, p. 65.)

digenous here, but introduced from the south-east of Africa, where the Zulus especially are noted hemp-smokers.

The following day brought us as far as Tseweb, where I collected a white-flowering climbing *Jasminum*, an *Aegilops*! and noted many trees of *Diospyros mespiliformis*, but without fruits. As we had collected on our path a few bags of the yellow Plum-like fruits of *Sclerocarya Schweinfurthiana* (similar to Walnuts, but instead of the green and bitter shell, they have a very sweet and scented pulp that adheres to the nut). We set an Ovambo, one of our coloured people, to work, to make a kind of beer, the national beverage of the Ovambos. As the juice is very sweet, it becomes very intoxicating after fermentation.

On July 2 we crossed forests consisting mainly of *Balsamea* (small thorny trees of a very clumsy aspect, with greyish-green bark, which can be easily torn off like that of Birches). Next day we passed a forest with several wonderful groups of *Hyphane ventricosa*, varying in height from 8 to 12 m., most of them were males, and there were only three females, bearing each two or three trusses 3 to 4 ft. long, with brown fruits the size of Apples. Our path led constantly through bush and forest-land, and besides the above-named trees

Nu-gusib, the last water before Onamutoni, is situated in a very extensive forest of *Copaifera Mopane*. Here I saw for the first time this beautiful tree as a predominating forest tree, which, with its thick rounded crown of *Bauhinia*-like foliage, and a straight stem, makes a deep impression upon the traveller, reminding him somewhat of the fine Beech forests of his fatherland. A fresh green branch, held over the fire, after a few moments, burnt with a wonderful white flame, on account of its resinous properties. The trees were full of fruit, which contain one large and very peculiarly-folded flat seed covered with numerous bristles of yellow *Copaiva Balsam*. It is not unlikely that in time *Copaiva Balsam* will be an important article of exportation from this country.

Hitherto German South-West Africa has exported only guano, a few thousand seal-skins, ostrich-feathers, a few bags of gum (of *Acacia horrida*), and a good many ethnographical curiosities. This is very little; and it will remain little, if the rich copper-mines are not reopened. You may recollect that I told you that a company with 2,000,000 pounds capital, had been constituted, in order to explore the Otavi and Tsamab copper-mines. Just now nobody speaks further of this matter.

Onamutoni was reached at last on July 13,

Okaakana. Our road went down to the east end of the Etosa basin, which was lying before us after a short "treck" in its entire and enormous extent, flat like a table, in many places covered with snow-white salt layers. There was no water in it, but the clay bed of the basin was still so wet that we preferred to keep to the ordinary road along the southern side. If you look at the best existing map of German South-West Africa, that of Langhans, you will find at the south side of the basin, the words "Waterless Desert." But such is not the case. I found almost the whole region covered with wonderful *Copaifera* forest, mixed in some places with *Acacia hebeclada*. The sixth day after leaving Onamutoni, having passed nine constantly-flowing fountains, we reached Okakuejo, a fountain about 20 kilometres in a westerly direction from the Etosa basin. Here we met with two missionaries of the Rheinisch Missionary Society, who were on the way to their station in the province Mosametes, not far from the Kunene. We travelled together as far as Okaakana, where we separated, the missionaries going northwards, and we went back the same way that we had come, and that without the salt! Here in Okaakana our seven "span" oxen had emptied at once the four pits, which did not fill again, thus we could not attempt to go further to the salt layer, which was still 40 kilometres

distant, without knowing with absolute certainty, whether we should find a sufficient water supply there. I increased my list of collected plants by 35 species only during the whole long journey, among which the most interesting are one *Fouquiera*, one *Typha*, three *Polyporus*, and three *Acacias* new to me. The 4th August we arrived again at Amutoni.

I enclose a specimen of a very interesting plant, which I take, although it has a very peculiar exterior, for a *Portulacacea*. It is growing near Windhoek as well as near Grootfontein in the north, and Bersaba in the south, in hard, clayey, sandy soil, sprinkled with pieces of quartz. I put in February, shortly before starting for the north, half-a-dozen of these plants into a wine-press,

My opinion is, that this is a very characteristic form of self-protection, or true mimicry (or intended mimicry), while the imperfect affinity of two plants from different countries is a pure coincidence, effected by similar conditions of existence; but is not, as Mr. Williams considers, mimicry. I use the technical term mimicry in the same sense as that in which Dr. Marshall used it in an entomological article in *Vom Fels zum Meer*—that is, as meaning self-protection, as when a locust imitates a green leaf, or piece of grass or sandstone, or a butterfly has the colouring and form of the wasp.

I was not hitherto aware that *Acacia* belonged to the category of the ant-plants; I learnt it only a few days ago from a friend. I put a pair of

about six square miles, and growing together, three *Campanula*, one *Laurentia*, seven *Lobelia*, one of the genus of which I was not able to find out with the *Flora Capensis*.

The number of *Acacia*, including *Albizzia*, I have collected so far in the country, amounts to 18 species. The number of *Utricularia*, 4; ditto *Orchids*, 4; ditto, *Orobanchaceae*, 4. I never found any *Aroids*. *Dinter*.

NEW VARIETIES OF LILAC.

THE Lilac in its several forms has been greatly improved during the last quarter of a century, and chiefly by one hybridist, Mr. Lemoine, of



MADAME CASIMIR PERIER.

Top—MADAME LEMOINE.
Bottom—ANDENKEN AU LOUIS SPÄTH.

PRESIDENT GRÉVY.

FIG. 35.—NEW VARIETIES OF LILAC.

together with some others, and left them here in Windhoek under the hot iron roof of a store, in order that the plants should not become mouldy during my absence. I was rather puzzled to find the plant, when I returned to Windhoek in the middle of October, still almost as fresh and healthy as it was in February, eight months earlier, only the stems were a little lengthened and pressed, and the thick roots a little shrivelled. The same was the case with *Portulaca quadrifida*.

A yellow-flowered *Mesembryanthemum* (which is not one of the ten species enumerated in *Harvey & Sonder*) frequently grows near the *Portulaca*, but is even more dependent on the small rounded pieces of quartz. This plant so closely resembles, when not in bloom, the form and colour of the pebbles among which it grows, that it can only be detected by an experienced eye.

opened spines with ants by. Spines, infested by ants, are thicker than healthy ones.

The tubers of *Aponogetons* possess a tenacity of life similar to that peculiar to those of *Liliaceae*; in February, I collected in a pond east of Windhoek an *Aponogeton*; as the leaves were dry and thin, after two days more drying, I thought the bulbs also would be dry. When putting my herbarium into order a few days ago, I discovered that the tubers were as fresh as if collected yesterday. I put one of them into water and it is already beginning to grow! The importation of this charming little plant is therefore very easy, although previously I thought it impossible.

In October I was two weeks botanising in the Anas mountains, two hours south of Windhoek. There I found on the borders of a "Riva," not fewer than six *Campanulaceae* upon an area of

Nancy, whose efforts have had marvellous results. At Stuttgart, in the nursery of Mr. Wm. Pfitzer, senior, there is a fine collection of the best of the older varieties, as well as the most recent novelties. This nurseryman has always taken great interest in Lilacs, and he tests all the new varieties in his romantic garden on the hillside of the picturesque Hasenberg. It was always a pleasure to me to spend a few hours among them on fine May mornings, and many were the passers-by in the adjoining street who were attracted by their beauty and fragrance.

The collection consisted mostly of standard trees, 10 to 12 feet high, which are generally garnished with *Clematis*, *Roses*, *Forsythias*, *Jasmines*, &c., thus hiding the naked stems. It included most of the best single and double-flowered varieties enumerated in nurserymen's

lists, from the earliest to the latest varieties. Those tried and found wanting were re-grafted with something new, thus making fine strong plants. Lilacs are very attractive in the month of May; but desirable and beautiful as they are, they should not be planted in great numbers in small gardens, as, after flowering, the shrubs offer few attractions. For affording flowers in the winter months, they are almost invaluable. Taking our illustration (fig. 35, p. 115) from the left to the right, we have first Madame Casimir Perier, one of the most beautiful of the double white varieties, having large double creamy-white flowers. It is an improvement on Madame Lemoine, in being dwarfer and more floriferous; it forces capitally. The illustration affords but a faint idea of its beauty. The variety at the top in the central vase is Madame Lemoine, a beautiful variety, with large, double, pure white flowers, a variety which has received awards wherever exhibited. It is an excellent forcing variety, and very free-flowering. Its enormous trusses of bloom consist of about six spikes, with several smaller ones between them, the whole forming a dense mass of flower, as the annexed photo shows.

The variety occupying the lower place in this vase is Andenken an Ludwig Späth, named in English catalogues Souvenir de Louis Späth, and is one of the finest varieties in existence. It is distinct, possessing large, graceful spikes of a foot in length, of dark reddish-purple flowers, two or more of which are produced together on one branch; it is excellent for forcing.

President Grévy occupies the third vase in the line. It is a beautiful variety, with fine trusses, and may be best described as an improvement on Mishel Buchner. *H. R. W., Clapton.*

VEGETABLES.

SOME POINTS IN CELERY CULTURE.

In order to produce good Celery, it is essential to allow the plants a long season of growth, to permit no check, and to cultivate highly. Taking these points seriatim, it is unadvisable to defer the sowing of the seeds till so late a part of the spring that it becomes impossible for the plants to attain to their greatest possible size. For this reason I like to sow for the main crop sometime between the middle and the end of February. Germination may be aided by means of artificial warmth immediately the leaf appears. A cool temperature should be afforded, where, while growing, they may in no sense of the word, be excited. About the middle of April, and sometimes earlier, the seedlings will have reached a stage when they should be transplanted singly into beds out of doors, and any delay, once the seedlings have reached a size suitable for this operation, exerts a lasting injurious effect on the plants. A striking instance of this occurred in my own case last year, when, through a mistake, a smaller number of seedlings was pricked-out than was required, and these when finally pricked-out remained all through weaker than the early batch. All this stage, I think, a mistake is not uncommonly made in providing a too porous compost, and in making the bed of soil too deep. For my part, I find that the plants succeed better in a 2-inch layer, firmly compressed, of equal parts of strong loam and spent Mushroom-dung. The substratum is a thick layer of coal-ashes, beaten down till it is hard and level. The seedlings are dibbled in, thirty across a 6-foot frame, or about 2½ inches apart.

The next point of importance is the preparation of the trenches. Having to produce a large quantity annually, I prefer four-line trenches, the ridges being 4½ feet, and the trenches 4 feet wide. Advantage is always taken of an opportunity to prepare the trenches some weeks before the plants are ready. By this means the ridges can be the sooner utilised for cropping; culinary Peas, Lettuces, and Turnips being the crops most generally taken—and in order to secure to these the fullest

advantages, the ground occupied by the ridges is previously deeply dug, the trenches being thrown out. The depth for the latter should be sufficient to allow of the soil being made level with that of the garden, once the necessary manure has been wheeled in. The last named, a mixture of cow and horse dung, is 6 inches thick, spread equally over the trenches; and in digging it is mixed with the soil to its entire depth, the practice of placing the manure in a layer in the bottom of the trench, and above that the unmanured soil, being less conducive to an uninterrupted vigorous growth. Following the digging, a slight dressing of Mushroom-bed dung is applied to the surface and hoed-in; and in addition, just before the plants are set out, an application of superphosphate is made. Ours is open and light soil, and I find it distinctly advantageous to afford firmness by trampling it, which has the effect of preserving it in a healthy moist, state, and it also conduces to a less rapid extension of roots than otherwise would be the case.

As regards planting, the time chosen is either the end of the month of May, or quite the beginning of June, and if possible in damp weather. Last year, for instance, the plants were fortunately transplanted while the soil was so moist as to need no water, and as a fact, not any was applied last year, one of the driest of summers. The benefit of a shallow and firm preparatory bed is apparent when transplanting. The plants being lifted on spades in "turves," each one comes apart from its neighbour a nice rooted mass, and is covered with an inch of soil when planted, pressed down with the foot, the surface being afterwards Dutch-hoed, a process that is occasionally repeated, in order to keep the surface friable. Two months subsequent to planting, I find it distinctly favourable to the growth of the plants to introduce from the sides of the ridges sufficient soil to cover the surface 2 inches in depth. The middle of August sees, perhaps, 200 plants earthed-up, and these will be ready for use towards the end of September, at which time a second batch should be treated in the same manner, and the remainder one month later.

A simple method of keeping the stalks close while earthing them up consists in running a string from end to end of each row, binding, without however tying, each plant with the string, and securing each end to a stick to keep it tight. A long row can be tied in this way in a few minutes. When the earthing-up is finished, the string is drawn out and used for another.

There are so many fine varieties of Celery in cultivation that it is almost needless to name any. For many years I have relied on Standard Bearer for the latest supply, that is, up till April; and for autumn and early winter my favourite used to be Sandringham Dwarf, but that variety has of late years been superseded by Veitch's Superb White. Both varieties produce thick, bulky stalks, and the blanched portion is invariably also thick, an essential condition where Celery is a favourite salad. *R. P. Brotherton, East Lothian.*

VARIATIONS PRODUCED BY GRAFTING, AND THEIR INHERITANCE.

(Concluded from p. 88.)

INARCHING.—Before proceeding to consider mixed grafts, allusion is made to inarching where the plants are not severed above or below the union, each still remaining in connection with its own roots. Such a process may have a practical value, for although it is of no use to increase the size of the plants, Cauliflowers from which seed is usually obtained with difficulty, readily fruited when treated in this way.

By mixed grafts a balance is able to be kept up between the functional activities of stock and scion, and success otherwise impossible obtained. Such a case is illustrated by the grafting of a deciduous plant upon an evergreen; here the stock expects the scion to work in winter, but having lost its leaves it cannot, and the graft fails. If some of

the branches of the evergreen stock are allowed to persist, however, the difficulty is got over.

M. Daniel was enabled to maintain a Pear scion on a Crab-stock for a longer time than usual (1892—1898) by using the mixed graft, but being left to itself it became exhausted in the end.

Grafts were made during germination between the black Belgian Haricot (with three or four violet flowers in the inflorescence) and the large Soissons variety (with a score of yellowish-white blossoms in the head), the latter being the stock. One series had all the lateral-buds removed from the stock, and so consisted of simple grafts; in the second the shoots springing from the region of the cotyledons were allowed to grow, and mixed grafts resulted. As might be expected the evils of altered nutrition were apparent in the simple grafts, and these were stunted. Little apparent difference in growth was manifest however between the scion of the mixed series and the control plants. In one case, however, a graft produced a head of nine dirty-white flowers, streaked with violet.

It is not surprising that the chief differences should appear in reproductive organs to the formation of which both components of the mixed graft contribute material they have elaborated, and this is particularly the case when seeking seed from the graft, the stock has not been allowed to fruit, and *vice versa*. The practical value of mixed grafting for the production of hybrids without the intervention of sex need not be dwelt upon, but at the same time its possibilities for lessening the undesirable variation due to nutrition alone must not be lost sight of.

INHERITANCE.

The second part of the paper deals with the inheritance of the characters produced by grafting, and is based, naturally, upon experiments with herbaceous plants, seeing that the time necessary for observation upon successive generations of trees precludes such investigation upon the part of a single individual. As might be expected, the young of plants stunted owing to bad nutrition after grafting, were themselves degenerate. On the other hand, the large seeds produced by wild Carrots on cultivated stocks produced plants that approached to the latter in habit. A remarkable percentage of variations (the cotyledons varied in number from 3 to 1) was also noted, and several intermediate characters.

The seedlings from an Alliaris on Cabbage, recalled the appearance of the latter, and would have been set down as at least a new variety by a classificatory botanist. It has been found impossible to produce sexual hybrids between any two distinct species of Cruciferae by several workers, and the one recorded case is still contested. Hence the practical importance of a process which will bring about a variation in the first generation. Notable also are the Kohl Rabis obtained from the white variety grafted on the red; the "new" variety remained sound in the wet autumn of 1894, when many of the control plants rotted from the severe winter that followed, and while the former survived all the other members of the Cabbage tribe succumbed to the frost. Other instances are given, and the transmission of characters by vegetative reproduction of the stock shown to be partial with the Potato and Jerusalem Artichoke. From the seeds of the Haricot Beans above described, where there were mixed grafts, the streaking of the flowers was not transmitted; but this is the only experiment at present made on such grafts.

M. Daniel concludes that the direct influence of the graft is not universal; that he has proved that actual variations, apart from the effects of nutrition, are at times induced; that these being acquired by the plant during its lifetime and transmitted to its offspring, Weissman's contention is not good so far as plants are concerned. We will not here go into the question any further than to point out that what M. Daniel calls the progeny of a grafted plant—the true graft hybrid, in fact—may be looked upon as springing from two plants, when acquired characters in the special sense of the word might not come in.

ODONTOGLOSSUM CRISPUM MUNDYANUM.

Our illustration (fig. 36) represents one of the two fine *Odontoglossums* exhibited by Norman C. Cookson, Esq., Oakwood, Wylam, Northumberland (gr., Mr. Wm. Murray), at the meeting of the Royal Horticultural Society on February 13, when it was awarded a First-class Certificate; the other, *O. c. Cooksoni*, having previously been given a similar award. *O. crispum Mundyianum* takes high rank in the fine section which includes *O. c. Franz Masereel*, *O. c. Ashworthianum*, and a few other famous varieties. The ground-colour of the flower is white, tinged with rose-purple, and heavily blotched with chestnut, or red-brown, the central area of the lip being bright yellow.

MARKET GARDENING.

PALMS FOR MARKET.

CONSIDERING the enormous consignments of Palm-seeds annually imported, it is somewhat remarkable that our markets never seem to be

dealt with as soon as received, and it is of importance that they should not be allowed to get quite dry, so that if they cannot be sown as soon as received they may be turned out of the packages and covered with Cocoa-nut fibre refuse, or other moist material. Or if they arrive in a dry state they may be put into water for a short time, but it is not advisable to leave them in water for longer than one day. I find the fibre is a good substance in which to germinate them. Some growers clean the husks off before sowing, but this is waste of time. Having to deal with a large quantity this season, they were put in as received, and they have germinated as well as any I ever had to handle. When sown in cocoa-nut fibre refuse they should be taken out and potted singly as soon as the first leaf begins to expand. In potting, it is very important that the soil should be pressed firmly, and that the roots should not be broken. For the first potting, good loam, with sand added, may be used, and for later pottings some manure may be added; or if the loam is close and heavy, a small quantity of peat may be added. Over-potting should be avoided, for with large pots they are liable to get too wet, through the constant

pulpy, with a bright bluish outer surface; if the seeds are put in water this may be washed off, but if the covering has dried up it may easily be rubbed off. The cultural remarks above may also be applied to this Palm, except that they must be grown on throughout under one method of treatment. Those grown close together in a high temperature make long leaf-stalks, and for some purposes are more useful than the spreading plants with shorter stalks. The latter are certainly the most symmetrical, and when those that have been drawn up are exposed to more light and air the new leaves do not correspond with the older ones. The most useful size plants are those in 32's (6-inch pots), as in a 48 it hardly gets sufficiently characterised, though large quantities are sold in this size; extra large plants are not much in favour, as they spread too much. *Livistonia chinensis* is the most correct name perhaps, though I think, as a market plant, it will be a long time before it is known by any other than *Latania*, or *Fan-Palm*. *Livistonia rotundifolia* and *L. altissima* have been tried, and they make fine plants, but do not withstand hard usage so well, or find so much favour as market plants.

ARECA LUTESCENS.

This is an old favourite, but since the *Kentias* have come to the front it has been rather neglected, though at the present time there is a fair demand for plants in 48's and 32's. It is often grown with three plants in the same pot, being rather too thin a plant when grown singly. The seeds are very uncertain: when good they germinate quickly, and almost every seed in a large consignment may retain their vitality; while I have seen other consignments which had, to all appearances, been packed in good condition, have reached their destination in a useless condition, and every seed has refused to germinate. One importer from South America adopted the plan of sowing the seeds in boxes, and this proved fairly successful, most of the plants making a good start before reaching this side. When seeds are received in a dormant condition they should be sown immediately. It requires stove treatment, and although it stands well during the warm weather, it is of little service for winter work.

COCOS WEDDELLIANA.

The seed-crop of this useful Palm is very uncertain; some seasons we get very large importations of seed in fine condition, while it sometimes happens that the crop entirely fails, and the small quantities that are received are of doubtful quality. This makes it difficult to keep up a regular succession of the various sizes, a most important matter in market-growing. Some growers put the seeds in singly in small pots as soon as received; but they may be put in moist fibre, and taken out as they begin to start. It is, however, most important that they should be potted before they have made much root, for if the tap-root gets damaged they never make good plants. They may be potted in a lighter compost than the stronger-growing Palms; a humid atmosphere with bottom-heat, and avoid over-watering. It does not take up so much moisture as most plants, and when the soil once gets soddened, the plants are sure to get into a sickly condition. It is generally supposed that this Palm is too tender for ordinary house-decoration, but I have found it stands well if not too much exposed or over-watered. Either in a small state as a table-plant, or in larger sizes for groups, &c., it is one of the most elegant Palms we have.

PHENIX.

There are several species grown, the most elegant being *P. rupicola*, which after it gets a few well-characterised leaves has a bright and graceful appearance; but it requires careful treatment, the leaves being much inclined to die-off from the points of each pinna. I think a low temperature and too much moisture at night is the chief cause of this. *P. reclinata* is a more vigorous-growing species, and makes a useful plant. *P. tennis*, or



FIG. 36.—ODONTOGLOSSUM CRISPUM MUNDYANUM.

over-stocked with good plants of the more useful sorts. It is some years since it was generally predicted that *Kentias* would come down to a very low price, but as far as I know of this has not yet occurred, for during the autumn trade sales good prices were maintained for useful stuff, and although it may sometimes occur that the supply of some species exceeds the demand, it will be the exception rather than the rule. The really marketable sorts are confined to a very few species. *Kentias*, of course, take first place. A few years ago *K. Belmoreana* was first, but within the last two years *K. Fosteriana* has been more in demand. They are both equally useful; *K. Belmoreana*, as a 48-size plant for tables, &c., is the more elegant, but for larger specimens, *K. Fosteriana*, which grows taller, is more serviceable for decorations. *K. Canterburyana* grows too slow whilst young, but later it attains to a good size, and forms a plant well furnished with stiff-stalked recurved leaves.

CULTURE.

The *Kentias* may be grown under a variety of conditions. In the first place, the seeds should be

syringing necessary to keep the foliage clean. Although *Kentias* like a moist atmosphere, it is a great mistake to give too much water at the root; and with liquid-manure afforded occasionally, they will thrive better in comparatively small pots. I have seen them grown in 48-sized pots until they have attained to a size larger than are often grown in 24-sized pots. *Kentias* grown under various modes have a widely different appearance; when plunged where there is a good bottom-heat, and kept close together, they run up tall; but to make really useful plants, they should not be plunged after they are potted into the size they are to be sold in, or, I might say, after they are in 48's. To make well-furnished plants they should have sufficient room. Although they may be grown on in a high temperature, they should be gradually hardened off, and in selecting plants for immediate use those with the youngest leaf well developed should be taken.

LATANIA BORBONICA.

This is another popular Palm, the seeds of which are usually very cheap, and germinate freely. When received quite fresh the outer covering is soft and

canariensis, may also be mentioned. Seeds of all these are usually very plentiful, though until quite recently *P. rupicola* commanded a high price.

CORYPHA AUSTRALIS.

This is a very hardy Palm, and although it never makes such a high price as most others, it is worth growing, and provided the plants are kept free from insects, they may be crowded together wherever it is convenient to stow them, either in a cold-house or the stove. Those grown in the stove make the most useful plants; in a cool-house it is short and heavy. It may be grown under almost any conditions, and will last as well as the *Aspidistra*. There are other species of Palms grown to some extent, but those referred to in this article include all that is most useful. *A. H.*

ALPINE GARDEN.

RANUNCULUS LYALLI.

It is somewhat disheartening to be unable to find anyone who has been successful in permanently establishing *Ranunculus Lyalli* in the open in the United Kingdom. A few years ago so many plants were disposed of by dealers in hardy plants to growers in all parts of these islands, that it was to be expected that some one or other would have persuaded it to become a permanent occupant of his garden. Unfortunately this does not seem to have been the case. With the greater number the Shepherd's Water Lily was an entire failure, and died without producing a flower. In a few instances it flowered, but these were exceptional, and even there it does not appear to have long survived its seed-bearing stage. One of these places was the unique garden at Easter Duddingstone Lodge, near Edinburgh, of the late Mr. Charles Jenner. Unfortunately for me, I was too late to see it in bloom, but it was then giving promise of producing a crop of seeds. The plant looked very healthy in its place in a sheltered rock-garden, but it afterwards succumbed. I have made inquiries of many who had been anxious to grow *R. Lyalli*, but up to the present I have been unable to come across anyone who has been any more fortunate than was Mr. Jenner, whose then gardener, Mr. Mungo Chapman, now of Torbrex Nursery, Stirling, was an exceptionally good grower of hardy flowers. I do not offer any explanation of the cause of the failure of this plant in our gardens. We should be more likely to discover what this was if anyone could show us under what conditions it has been established in a garden in the United Kingdom. This would not prove that it could be grown in every garden, but it would give a stimulus to a few who have not yet lost hope of establishing this fine flower in British gardens. *S. Arnott, Carsethorn-by-Dumfries, N.B.*

AN EARLY-FLOWERING SNOWDROP (*GALANTHUS BYZANTINUS* VAR.).

Some years ago, Mr. James Allen, of Shepton Mallet, and the writer, obtained through a correspondent, a number of bulbs of a Snowdrop collected near Broussa. When this flowered with us it appeared to be the same as that described by Mr. J. G. Baker in the *Gardeners' Chronicle*, Feb. 25, 1893, p. 226, as *Galanthus byzantinus*, a new species. It was afterwards identified as being that species, which is intermediate between *G. plicatus* and *G. Elwesii*. These Broussa bulbs gave flowers of much diversity of form and markings, some of them approaching closely to *G. plicatus* and some to *G. Elwesii*. The leaves of some were plicate, and others were similar to those of *G. Elwesii*. They have every appearance of being natural hybrids. In addition to their other differences, the plants flower at various times; and three or four years ago Mr. Allen informed me that one of his plants was among the first Snowdrops to bloom after the new year.

Last year he very kindly sent me a bulb, and this season it has been the first to bloom since January 1, with the exception of *G. Elae*, which ought to flower in December here, but has been late for once. I observed this early variety on January 17, which is several days earlier than the blooming of the other spring Snowdrops, which seem, by the way, to be rather later this year than is their wont. This variety is not large, but is of great purity of colour, and looks pretty in the rock-garden where it is grown; the leaves are broad and slightly plicate. The Snowdrop is very welcome in the opening of the year, and one is glad to have a variety which will be a precursor of its sisters. *S. Arnott, Carsethorn-by-Dumfries, N.B.*

THE WEEK'S WORK.

FRUITS UNDER GLASS.

By J. ROBERTS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Strawberries.—The earliest plants now passing out of flower may be afforded a much higher temperature if early fruiting be desired, but if fruit of the largest size and finest quality is looked for, a moderate degree of heat, namely, 60° to 65° at night, and 70° by day, with 10° rise by sun-heat, will bring them forward sufficiently rapid. The plants during the last stage should receive full sunshine, and to do this conveniently they should be placed on shelves near the roof and afforded air freely whilst ripening. The short period of time between setting and ripening must be taken advantage of to sustain the plants with rich nutriment. Manures of a pasty nature should be avoided as they clog the soil, and render it sour and unhealthy, spoiling the flavour of the fruit. Clear liquid made with sheep or deer-droppings is good; and an easily-made manure, clean in use, and quick in action, consists of ½ oz. of sulphate of ammonia stirred into a gallon of water. Continue to introduce fresh batches of plants into any forcing-house that is started, or failing these into hot-water pits, &c.

Peaches and Nectarines.—In the earliest house the trees will require the frequent removal of young shoots, until finally disbudded. Crowding of the growths is bad practice, one shoot at the base and one leader being all that are required by trees that have filled their allotted space. In all cases, whether on back walls or trellises under the roofs, the future shoot should be taken from the side where it will be most convenient for training in. All foreright shoots should be removed entirely, and the tying of the selected shoots into their proper positions should be attended to at an early stage of growth. Where the set of fruit is a good one, an early thinning should take place, leaving two or three of the best placed fruits at about equal distances apart on each shoot. A few fruits may be left on the under-side of the trellis, which will form a succession to those more exposed to the sun. After this stage is reached the borders must be kept uniformly moist, and where the trees are aged and have occupied the borders for some years, liquid manure may be afforded at every application of water with advantage to the swelling fruit. Young and vigorous trees in new borders will not require liquid manure until a later stage. When the fruits are swelling freely, a rise of temperature to 60° at night, and 65° to 70° by day, may be afforded. Take the opportunity to ventilate freely on mild sunny days, in order to give substance to the foliage; and fumigate on the first appearance of green-fly.

Melons.—The weather up to the present time has been very unfavourable to the plants, and until warmer nights and sunnier days prevail their progress will be slow. At the same time, where the plants are healthy, and the temperature of the bed of fermenting material is kept up to 75° or 80°, a steady root action will be going on, and this, with the natural rise of temperature, will soon start the plants into free growth. Every encouragement should be given to bring about this condition by keeping the house well damped down, and closing early on sunny days. During dull and damp weather, when but little air can be given with safety, much atmospheric moisture should not be afforded, as it tends to make the foliage tender,

and the probability is that it will collapse before the ripening period is reached. Ventilation requires to be carried out cautiously during cold, windy weather; but every favourable opportunity should be taken to change the air of the house without creating cold currents. A temperature of 70° by night must be maintained, and 10° higher on favourable days. Preparations for a succession crop should now be made by getting the necessary heating material—dung and leaves—into a sweet condition by frequent turning. After this date a selection of young plants should always be on hand ready for planting when and where required.

PLANTS UNDER GLASS.

By T. EDWARDS, Foreman, Royal Plant Gardens, Frogmore.

Chrysanthemums.—If the stock of cuttings should now be sufficiently rooted as to be fit for potting in large 60's, the work may be forthwith undertaken. If insufficiently rooted the soil has probably become sour, but by carefully shaking them out of it and placing them in fresh soil, a start may readily be induced. In potting cuttings see that the drainage is carefully arranged and covered with some fibrous material, and that the soil is in a fit condition as regards moisture. This can be ascertained by squeezing a handful of it, and if it clings together in a ball it is too wet, and should be mixed with some dry mould and allowed to stand for a day before using. The potting should be done firmly. At this time of year manures are not much needed, and a soil that consists of three parts good loam to one of spent Mushroom-bed dung is rich enough, and may be freely used with heavy loam, and a little of it is good even in light soils. When potted, let the plants be stood on a bed of coal-ashes in pits near the glass, only sufficient heat being afforded as will ward off frost. No water should be applied for a few days, only overhead sprinklings, until the roots become active. During cold weather very little air should be admitted; careless ventilation and easterly winds soon breeding mildew, and any check of that sort is usually followed by attacks of green-fly, very dangerous at this season.

Salvia Heerii and S. Gesneriflora.—These plants, now forming bright features in the conservatory, should never be omitted from a collection of winter flowering plants. At about this date, cuttings of these varieties may be put in; potted off singly when rooted, in May they may be planted out of doors. They will make plants four to five feet high, during the summer season. At the end of the month of September, they may be dug up and potted. They are easily grown, and are not touched by insects.

Phrynum variegatum, may be divided into small pieces, potted in large 60's, and plunged in bottom heat of 80°. Small pieces will often make plants two to three feet high in 48's and 32's, in the course of one season. Grown in light sandy soil, the bold variegation comes out very effectively, making it one of the most useful plants of recent introduction; and unlike *Dieffenbachias*, *Dracenas*, &c., the plant does not suffer by being made use of in apartments.

THE FLOWER GARDEN.

By J. BENSON, Gardener to the Earl of Ilchester, Abbotsbury Castle, Dorset.

Perennials and Biennials.—Any of these plants raised from autumn-sown seeds, as soon as renewed growth is noticed should be dibbled-out where they are to flower in beds and herbaceous perennial borders. The stations, &c., should be suitably prepared by being dressed with fresh loam and manure as may be required. Pansies raised from autumn sowings may now be planted in beds or in the reserve garden, employing fibrous-loam chopped into small pieces as a dressing for the land, and thus ensure their lifting with plenty of roots to which the soil will cling, and receiving no check when they are planted where they are to flower. Selfs should be carefully selected, and those which are found to be true kept by themselves and distinctly named, and the colour indicated on the labels. Seedlings of varied colours make attractive beds; and groups in borders. Pansies struck from cuttings in cold frames in the autumn should be afforded air freely at all times when there is no frost. If damping-off occurs, or mildew is remarked, apply charcoal-powder to the soil. If crowded, transplant them to a warm border, which has been enriched

with finely-chopped turf and spent Mushroom-dung, placing the plants 4 to 5 inches apart, to be lifted with a good ball of earth later on. If the Pansy is required in bloom continuously, sowings should be made thinly in boxes or wide pans. If the stock of plants is not sufficiently large, plants may be dug up, divided, and the rooted divisions pricked out on a bed of rich, porous soil, overlying a very mild hot-bed, covering them with a common garden frame or handlight. They may be planted-out in beds, &c., when well-rooted.

General remarks.—An inspection should be made of the trees and shrubs, and any branches which may have been partly broken off by the recent heavy snowfall should be bound up tightly till the wound heals, badly damaged branches being removed neatly, and the wounds dressed with pitch or lead-coloured paint. Afford the paths and broader walks a sweeping and hand-weeding; roll the turf, and keep every part as neat and trim as the means afforded will allow.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WISART, Bart., Clare Lawn, East Sheen, S.W.

Cypripedium Spicerianum has recovered from the weakening effects of flowering, and may be re-surfaced or re-potted as is necessary. Plants that have sufficient root-room, and are in a satisfactory condition, need only be given a top-dressing, after removing as much of the old surface material as convenient. Those that must be re-potted should be placed in a compost consisting of two parts good Orchid-peat, one part yellow loam fibre, one part of chopped sphagnum-moss, and some old lime mortar, broken into small nodules. If old mortar cannot be obtained, crocks will suffice. Every particle of old potting material should be cleaned away from the living roots of unhealthy plants, and all dead roots be cut away, unless they are necessary to the potting operation. Use pots of medium size, that will not require a large quantity of compost, and rather more than half fill them with drainage material, which for *Cypripediums* in general, should consist of smaller pieces of crock than are employed for Cattleyas, and such species. Cover the crocks with a layer of sphagnum-moss, and fill in with the compost to the level of the rim, but not higher. The base of the growths should be just covered when the operation is completed. Healthy plants need not to be shaken out, but the loose material may be picked away. Place the plants in pots rather larger than those from which they are removed. If division is desired, the operation should be carried out with extreme care, as the roots intertwine much and are brittle. This species may be afforded a position where ample shade can be afforded during the summer months, and where a temperature of 55° to 60° is maintained during winter, to be increased gradually as the season advances. Atmospheric moisture is essential at all times. Re-surfaced plants will not yet need large supplies of water, and those repotted should only be afforded as much as will keep the soil moist until root-action commences. They may be syringed overhead on dry and bright days. *C. Spicerianum*, when employed as the pollen-bearing parent, has given some good hybrids, but it is a bad seed-bearer. The best species in my opinion claiming affinity with the *C. Spicerianum* is *C. Leeanaum*, which thrives under similar treatment and conditions.

Cypripedium insigne may likewise be repotted or top-dressed as is required. Excepting that this species thrives in a lower temperature, there is nothing to add concerning its treatment to what I have written respecting *C. Spicerianum*. Hybrids from *C. insigne* generally appreciate a trifle more warmth, because the other parent was of a more tender character.

Selenipediums, other than *S. caudatum*—which should be attended to in the autumn—may be re-potted or re-surfaced, commencing with those grown in the East Indian house, viz., *S. longifolium*, *S. Roezlii*, *S. x calurum*, *S. x Sodenii*, *S. x leucorrhoda*, *S. x grande*, *S. x nitidissimum*, *S. x Penelaua*, *S. x Perseus*, *S. Lindleyanum*, *S. Sargentianum*, &c. *S. Pearcei*, *S. x Schroderae*, and *S. x Dominianum* grow best in a warm intermediate temperature; and *S. caudatum* and *S. Schlummi* under moderately cool conditions. The pots or pans used should be nearly three parts filled with crocks, and the compost consist of two parts

peat to one part sphagnum-moss. It is an advantage to raise the base of the plant upon a slight mound, on account of the creeping rhizome. Disturbed plants should be sparingly watered for some time afterwards, but when they are rooting freely it is almost impossible to afford them too much. In houses where the atmosphere is inclined to be close, watering overhead should be avoided, but if evaporation is rapid, no harm will result from such a practice.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener, Stoke Edith Park, Hereford.

Manuring Fruit-trees.—This is by no means an unimportant matter in connection with fruit culture. Nourishment may be applied in the shape of decomposed stable or farmyard manure, or by means of artificial manures. When there is not sufficient animal manures for all the requirements of the garden, and the deficiency is made good with artificials, a change should be made the following season by using animal where artificial manure was applied previously. This will afford the trees a change in the food supplied them. In regard to Gooseberry, Currant, and Raspberry plantations, no very serious error is likely to occur in the application of manures; but in the case of Apple and Pear-trees and others, manure should be withheld from those that are barren through making too much wood already. Trees bearing freely need manure to be applied whether the trees are on walls or in the open. Of concentrated manures, bone-meal, dried blood, kainit, superphosphate of lime, and muriate of potash, are all good. The best quality of basic slag is also serviceable, but it is now rather late to apply it. The first two manures may be used in combination for stone and bush fruits. Kainit and superphosphate of lime, when combined, are good for Apples and Pears. The first and the last two named, when mixed together at the rate of 3 lb. of the former to 1 lb. each of the other two ingredients, afford splendid stimulants for fruit-trees, especially those that produce woody seeds, as the Peach, &c. Old hot-bed manure answers well for Raspberries. Wood-ashes are exceedingly useful, and a good dressing may be applied to plantations of fruit-trees of all descriptions.

General work.—As soon as the pruning of trees and bushes is completed, and manure has been wheeled on to and spread about where it is required, the land may be dug, shallow under the bushes and deeper in the middle distance, between the rows, with the exception of the Raspberry quarters. In their case the manure should be spread between the rows and around the stools, after clearing up the prunings and weeds, and the middle spaces dug deeply, so as to afford crumbs of earth to cover the manure. In digging-in manure amongst fruit-bushes, &c., injury to the roots ought to be carefully avoided. When the roots are very near the surface, it is better to remove the surface-soil with a hoe, lay the manure over the roots, and return the soil over it. The Gooseberry sawfly-grub is at times very destructive, and measures should be taken early against it. The following simple plan has been the means of eradicating this pest at Stoke Edith:—The soil beneath each bush is at this date entirely removed to a depth of 3 inches, and buried deeply in a trench in another part of the garden. The bare surface is then heavily dressed with fresh slaked lime, and enough fresh soil, taken from between the rows, is then placed over the lime to make good the deficiency; and the surface of this soil is limed likewise. Remedial measures were also taken when the insects appeared in the summer months, but by following up the liming four consecutive years, the insects were entirely got rid of and have given no further trouble. Alleys in front of the fruit walls should have the surface loosened with a digging-fork to a very shallow extent. At this place it is almost impossible to do more than break up the crust over the roots of Peach, Apricot, and Pear-trees, so near are the roots to the surface. Remove all suckers on the roots of Plums and Peaches, by baring the roots and cutting the suckers clean away with a knife. If an application of artificial manure is to be made, this ought to take place previous to the pricking-up. The borders of the Peach and Apricot trees may be covered with long litter after the crust is loosened. Prune forthwith all newly-planted trees, and secure

them as their requirements may demand. Some object to the pruning of fresh-planted trees, but having given both methods a trial, I am strongly in favour of pruning soon after planting, and thereby establishing a reasonable balance between the roots and branches. If such trees were mulched at the time of planting, a little soil thrown over the same now will keep the mulch in its place. ■

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonsbirt, Tetbury, Gloucestershire.

The Current Season's Crops.—A scarcity of green vegetables seems not to be an improbable event in many gardens, the result of the drought of last summer and spells of mild weather coming between periods of severe frost. Sheltered gardens have suffered the most, and it is only here and there in exposed allotments that plants are to be seen at all, and it is remarked that these mainly consist of Wilcox's, Sutton's Queen, and the later varieties of Broccoli. Cabbage stumps which usually yield a fair supply of sprouts have been killed, and the greater part of the late Brussels Sprouts have rotted on the stems. Up to the present, the autumn-sown Cabbages here have come out well, foremost among them being Nonpareil Improved. The land should now be cleared of decayed Cabbage and Brussels Sprouts stumps, and be deeply trenched and manured. It will be wise to make a large sowing of some early variety of Cauliflower to assist in making good deficiencies. Seakale and Rhubarb-roots in the open ground should be covered, in order to maintain the supply; and Asparagus-roots in sufficient numbers placed in the forcing frames.

Forcing.—Owing to the late frosty weather a more than usual amount of fire-heat had to be used, and this being favourable to the increase of insect pests, clean water and the syringe should be freely used on the plants in the morning hours, and the pavement or ground kept moist in the vicinity of the hot-water pipes. French Beans are very liable to infestation by red-spider, and seldom do well afterwards. Sponging the under parts of the leaves with sulphur made into a thick paste will check the spread of the pest; but it is, after all, better to destroy the plants and sow more seed, and if possible grow the plants in another house. A slight fumigation should be afforded on mild nights in order to check the increase of aphides; and on fine days the amount of ventilation should be increased, so as to afford strength to the stems and leaves.

Tomatos.—Plants that were raised from seed in January will be sufficiently large to be lifted and dibbled into the centre of large thumb-pots, three-parts filled with a light, rich compost, plunging these in a bed having mild heat. As soon as they become established, apply a top-dressing, and place them in a very sunny part of the house. Plants raised earlier than January may now be placed in either new or well-washed 6-inch pots, so that the soil will not cling to the sides when turned out for the final re-potting or planting. Tomatos produce flowers, and set them more freely if the soil consists of fibrous loam, horse-dung, lime-rubble, and $\frac{1}{2}$ -inch bones pressed firmly into the pots. These plants may be stood in a sunny house, and afforded a temperature of from 60° to 70°, with considerable humidity, air being admitted in fine weather. Water at the root should be afforded in moderation till the pots become filled with roots.

Parsley.—If the supply from all sources is getting short, roots may be lifted, and placed in pots or boxes in gentle warmth, and occasionally damped overhead. As soon as the weather and the soil are favourable, seed may be sown out of doors. If the size of the garden will not admit of a large breadth being sown, Parsley may very well be employed as an edging to walks. A warm aspect, and a well-worked, heavily manured, and deep soil, are the chief requirements of Parsley. The drills should not be more than 1 inch deep, nor more than 12 inches apart; and the seeds should be covered with refuse potting bench-soil. The seeds of the Hamburg Parsley, for the production of roots and leaves for flavouring, may be sown in drills twelve inches apart, and about $1\frac{1}{2}$ inch deep in good, but not necessarily heavily-manured soil.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, FEB. 27. { Royal Horticultural Society's Committee (Shrove Tuesday).

SALES.

MONDAY, FEB. 26.—Fruit Trees, Roses, Hardy Perennials, &c., at Protheroe & Morris' Rooms. Clearance Sale of Nursery Stock, at the Putney Nurseries, Dryburgh Road, Putney, by order of Mr. J. A. Mahood, by Protheroe & Morris, at 12 o'clock.

WEDNESDAY, FEB. 28.—Japanese Lilies, Tuberoses, Greenhouse Plants, Continental Plants, &c., at Protheroe & Morris' Rooms.

FRIDAY, MARCH 2.—Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—49°.

ACTUAL TEMPERATURES:—

LONDON.—February 21 (6 P.M.): Max. 46°; Min. 32°.

Dull—mild—rainy.

PROVINCES.—February 21 (6 P.M.): Max. 50°; S.-W. Ireland; Min., 36°; N.-E. Scotland.

DAVID DOUGLAS.

THE suggested abandonment of the Royal Horticultural Society's garden at Chiswick, naturally revives the recollection of its glorious history. The Chiswick garden was established in 1822, and soon afterwards, and for ten or a dozen years subsequently, the collections made in Western America by DOUGLAS began to pour in.

Nobody, not even Fortune, has conferred so much honour on the Society and so much benefit to horticulture in general, as regards the importation of plants as DOUGLAS. And yet, as we have often noted, there is not a portrait of DOUGLAS in the Lindley Library, not a tablet to his memory in the garden, not a medal instituted to commemorate his services, not an indication that the greatest horticultural collector the world has known was in any way connected with the Society. His fellow citizens at Scone, near Perth, were more mindful of what is due to the memory of our benefactors, and shortly after his death they erected a monument in the tasteless style of the day in the cemetery at Scone. Latterly, this monument has been restored, and we are indebted to the Rev. A. STUART MARTIN for the opportunity of illustrating the monument (fig. 38, p. 121), and of once more calling attention to the labours of this distinguished collector.

DOUGLAS served his apprenticeship at Scone Palace Gardens, and having been trained by Sir WILLIAM (then Dr.) HOOKER, he was sent by the Royal Horticultural Society in 1824 to visit the forests of north-western America. At that time the journey had to be taken round Cape Horn, but he reached his destination in the following year, and soon began his explorations, and made known to his astonished employers the abounding richness of the district in Coniferous and other trees, and in herbaceous perennials. Seeds of the Douglas Fir, *Abies nobilis*, *A. amabilis*, *Pinus Lambertiana*, and

hosts of other plants were sent home; indeed, he is said to have collected eight hundred species, and to have introduced into this country more than two hundred kinds. Returning to England after his first voyage in 1827, he remained at home for two years, when he again set out to visit the Colombia river, afterwards going south to California, where he is said to have discovered no fewer than one hundred and fifty species. In 1831 he went on to the Sandwich Islands, but returned to the Colombia and Fraser rivers. He was wrecked in this expedition, losing his collections, and barely escaping with his life. In October, 1833, he sailed again for the Sandwich Islands, and on July 12, 1834, while exploring the high peaks of the islands, he fell into a pit in which a wild bull had been captured. Several hours later, DOUGLAS was found dead, and terribly mangled. "No other collector," says SARGENT, in his *Silva*, "has ever reaped such a harvest in America, or associated his name with so many useful plants."



DAVID DOUGLAS.
(Died July 12, 1834.)

DOUGLAS' letters, which are full of interest, were mostly published by Sir WILLIAM HOOKER in the second volume of the *Companion to the Botanical Magazine*.

The following is the inscription on the monument:—

ERECTED
BY THE LOVERS OF BOTANY IN EUROPE,
IN MEMORY OF
DAVID DOUGLAS,
A NATIVE OF THIS PARISH,
WHO, FROM AN ARDENT LOVE OF SCIENCE, AND A DESIRE TO
PROMOTE THE IMPROVEMENT OF BOTANY,
VISITED THE UNEXPLORED REGIONS ON THE
BANKS OF THE COLUMBIA, AND SOUTHWARD TO
CALIFORNIA; WHENCE
HE TRANSMITTED A GREAT VARIETY OF THE SEEDS OF
VALUABLE TREES AND FLOWERING PLANTS
ADAPTED TO THE CLIMATE OF GREAT BRITAIN,
AND
WHO AFTER DEVOTING TEN YEARS OF THE PRIME OF HIS LIFE
IN ADDING TO
THE ARBORETUM AND FLORA OF EUROPE
SUFFERED
AN ACCIDENTAL AND LAMENTED DEATH IN ONE OF THE
SANDWICH ISLANDS,
ON THE 12TH JULY, 1834,
IN THE 35TH YEAR OF HIS AGE.

ENDOWED

WITH AN ACUTE AND VIGOROUS MIND,
WHICH HE IMPROVED BY DILIGENT STUDY,
THIS EMINENT BOTANIST
UNFORMALLY EXEMPLIFIED IN HIS CONDUCT
THOSE CHRISTIAN VIRTUES
WHICH INVESTED HIS CHARACTER
WITH A HIGHER AND MORE IMPERISHABLE DISTINCTION
THAN HE JUSTLY ACQUIRED
BY HIS WELL-EARNED REPUTATION FOR SCIENTIFIC KNOWLEDGE.
A DUTIFUL SON,
A KIND AND AFFECTIONATE BROTHER,
A SINCERE FRIEND;
HE SECURED BY
THE RECTITUDE OF HIS MORAL AND RELIGIOUS PRINCIPLES
NOT LESS THAN BY
THE BENEVOLENCE OF HIS DISPOSITION
THE ESTEEM AND REGARD
OF ALL WHO KNEW HIS WORTH.

The following are a few of the numerous trees, shrubs, and ornamental plants introduced by Douglas:—

TREES.	
<i>Acer circinnatum.</i>	<i>Pinus Lambertiana.</i>
— <i>macrophyllum.</i>	— <i>ponderosa.</i>
<i>Amelanchier florida.</i>	— <i>nobilis.</i>
<i>Arbutus procera.</i>	— <i>amabilis.</i>
<i>Crataegus Douglasii.</i>	— <i>Menziesii.</i>
<i>Pinus Douglasii.</i>	
SHRUBS.	
<i>Berberis aquifolium.</i>	<i>Ribes sanguineum.</i>
— <i>glumacea.</i>	— <i>speciosum.</i>
<i>Garrya elliptica.</i>	<i>Rubus spectabilis.</i>
<i>Gaultheria Shallon.</i>	
ANNUAL, BIENNIAL, AND PERENNIALS.	
<i>Clarkia pulchella.</i>	<i>Gilia tricolor.</i>
<i>Olinthia elegans.</i>	<i>Nemophila insignis.</i>
<i>Collinsia grandiflora.</i>	<i>Ipomopsis elegans.</i>
<i>Lupinus polyphyllus.</i>	
<i>Eschscholtzia californica.</i>	
<i>Douglasia nivalis.</i>	
&c. &c. &c.	

At Honolulu, upon either side of the doorway or entrance to the Kawaiahae Church in Honolulu, the passer-by, says a writer in the December number of *Erythea*, may see tablets set in the wall. One of these is in commemoration of DAVID DOUGLAS, the botanical explorer, who met, after leaving California, a tragic death on one of the Hawaiian Islands. The inscription upon the tablet reads as follows:—

Hic jacet
DAVID DOUGLAS,
Scotia anno 1799 natus:
qui
indefessus viator,
a Londinensi Regia Societate
Horticulturali missus,
in Hawaii saltibus,
die 12 Julii A.D. 1834
victima scientiæ
interiit.
Sunt lacrymæ rerum, et mentem mortalia
tangunt. Verg.

ENCEPHALARTOS HILDEBRANDTI (see Supplementary Illustration).—No nobler plants than Cycads can be found for the decoration of warm-houses big enough to hold them. Apart from the magnificence of their appearance, there are few plants of greater interest to those concerned in structural botany, or in the history and descent of living plants from prehistoric representatives, whose remains are embedded in oolite rocks. No nobler collection can be found than that in the Palm-house at Kew. Our supplementary illustration is taken from a plant in that house, bearing seven male spikes. *E. Hildebrandti* was discovered in Zanzibar by HILDEBRANDT, and was introduced to this country by Mr. WILLIAM BULL in 1878. The leaves, well shown in our illustration, are covered when young with whitish woolly down, but the adult leaves are glabrous. The species was described by ALEXANDER BRAUN in the *Index Seminum*, or Seed List of the Berlin Garden, in 1874.

LINNEAN SOCIETY.—On the occasion of the meeting to be held on Thursday evening, March 1, 1900, at 8 P.M., the following papers will be read: I. "On Botanic Nomenclature," by Mr. C. B. CLARKE, F.R.S., F.L.S., &c. II. "On some



ENCEPHALARTOS HILDEBRANDTII, WITH 7 MALE SPIKES, ROYAL GARDENS, KEW.

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Foraminifera of Tithonian Age from the Limestone of Nesseldorf," by Mr. F. CHAPMAN, A.L.S., &c.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Fruit and Flower Committees of the Royal Horticultural Society will be held on Tuesday, February 27, in the Drill Hall, James Street, Westminster, 1 to 4 P.M. A lecture on some of the plants exhibited will be given at 3 o'clock, by Professor G. HENSLOW, M.A., V.M.H. Intending candidates for the Royal Horticultural Society's examination in horticulture on April 25, 1900, may obtain all particulars from the Secretary, 117, Victoria Street, Westminster.

THE GARDENERS' ORPHAN FUND annual meeting was a most satisfactory event, and showed a financial condition that supporters of the Charity may well be proud of. We quite agree with the committee in determining to meet all claims for benefits, so long as they can at the same time increase the Reserve Fund. It was never intended to hoard an immense fund for use in the future, by practising a policy of niggardliness in respect to present needs. That the meeting decided to place upon the Fund as members, five candidates in addition to the nine that were elected in the ordinary course, will doubtless encourage everyone to help to maintain the finances in such a condition that future needs may be met as they arise. At any rate, it will be satisfactory to subscribers to know that the money they may give will be used at once for the purpose they intended. The interest upon the Fund's capital is now sufficient to pay all the expenses of administration. We regret that Mr. WILLIAM MARSHALL has to retire from the position of Chairman of the Executive Committee. Mr. MARSHALL has rendered such excellent services to the Institution that he will be greatly missed in the Committee.

CAPTAIN H. CECIL ELWES.—We are glad to hear that this gentleman, who was severely wounded, has made an excellent recovery, and hopes to rejoin his regiment (Scots Fusiliers) in a few weeks.

MR. JOHN LAING, V.M.H., head of the firm at Forest Hill, is in his seventy-seventh year, and has been confined during the winter, more or less, to his residence, through impaired health. It is hoped, however, that he will be able to get about when the influences of spring have improved the weather.

DR. ERNST.—We learn from the *Botanisches Central Blatt* of the death of this veteran botanist, the Director of the National Museum in Caracas, Venezuela. In former years, Dr. ERNST was a correspondent of this journal.

DR. ROBINSON, the Curator of the Gray Herbarium, at Cambridge, Mass., U.S.A., has been appointed Professor of Systematic Botany in Harvard University. The new Professorship has been endowed in memory of the revered ASA GRAY.

DR. FARLOW.—The marriage of Prof. FARLOW, of Harvard University, to Miss LILIAN HORSFORD is announced. Prof. FARLOW's many friends on this side of the Atlantic will join in congratulating him.

MR. OWEN THOMAS, head-gardener to HER MAJESTY at Windsor, has received the Royal Order of the Crown of the Fourth Class from the GERMAN EMPEROR.

THE POTAMOGETONS OF THE BRITISH ISLES.—Mr. ALFRED FRYER has issued, through LOVELL, REEVE AND CO., parts 7 to 9 of this publication. It is handsomely got up, carefully and thoroughly elaborated, and well illustrated. To students of this not over popular group of plants, this monograph will be invaluable. It is too late to make the alteration now, but it would have been better had the name of each species or hybrid been given on each plate as well as in the text.

STREPTOCARPUSES are fast becoming popular garden plants. Since the species have been crossed with each other, several very beautiful strains have been obtained, all of which are exceedingly free and continuous bloomers. We saw a few days ago, in the greenhouses of Messrs. JOHN LAING & SONS, Forest Hill, London, a very large number of healthy-looking plants of their "multiflora" strain, that later will make a magnificent show of bloom. The *Streptocarpus* is an easily grown plant that requires little heat, and it responds to good cultivation by affording an extraordinary number of flowers. It is ornamental as a plant, and its blossoms are suitable for cutting.



FIG. 38.—MONUMENT TO DAVID DOUGLAS, IN THE PARISH CHURCHYARD, SCONE, PERTHSHIRE, N.B. (SEE P. 120.)
(The Monument has been renovated recently.)

THE DIXLOR WASH.—A wash for trees, &c., was brought to our notice in the course of last year, which we entrusted to an experienced cultivator to test for us, and the following embodies his opinion of the insecticide: "The 'Dixlor Wash' which you kindly sent to me to test was tried upon *Chrysanthemums*, which were allowed to become badly infested with both black and green aphids, with the result that the green aphides were killed with one dressing, but the black one needed three applications to thoroughly eradicate them. I used it in the proportions given, and found no injury was caused to the leaves of the plants. Probably one dressing afforded of greater strength, would kill black fly outright. Up to the present time, no black aphid has made its appearance; but a stronger application might cause injury to the foliage."

THE YORK GALA.—The schedule of prizes to be offered for competition at the forthcoming Horticultural Fête to be held in the Bootham Field, York, on June 13, 14, and 15, is a very liberal one. The sum of £750 is divided by the committee as follows:—For Orchids, Stove and Greenhouse Plants, £300; Pelargoniums, Carnations, and Begonias, &c., £200; Roses, Cut-flowers, &c., £160; and Fruits and Vegetables, £90. Four Gold Medals also will be awarded to the best exhibits from members of the trade. Groups of plants are generally a very fine feature of the York shows. We see that the sum of £58 is offered for competition in the miscellaneous group class this season; the 1st prize is £20. For a collection of Roses in pots a 1st prize of £10 is offered, and liberal 2nd and 3rd prizes. The class for a decorated table of ripe fruit, originally introduced into the shows at Shrewsbury, is becoming a popular one with many societies. At York, a sum of £40 is offered for such exhibits, the 1st prize being £15. Special prizes for vegetables are offered by several of the large seed firms. The Secretary is Mr. CHAS. W. SIMMONS, The York Hotel, York.

THE "HABIT" OF CONIFERS.—Every gardener is familiar with the striking differences in habit presented by different Conifers. Leaving aside minor details, it may be said that the differences depend, in the first instance, upon the presence of one main axis (trees), or on the formation, as in plants of shrubby habit, of numerous axes of about the same size, no one of them being specially predominant. Dr. ARTHUR BURTT, a pupil of the University of Tübingen, has, in his inaugural dissertation for the doctor's degree, studied the matter in greater detail, notably in the investigation of the relative lengths and proportions of the secondary shoots, and in the observation of the angles formed between the main axis and the secondary shoots, and those between the shoots and the ground line.

THE "JARDIN DES PLANTES."—We have received a copy of the list of seeds collected in the gardens of the Museum at Paris, and available for exchange. Applications should be made to M. le Directeur du Museum d'histoire naturelle, Rue Cuvier, 57, Paris.

THE NEW FORESTRY.—Mr. JOHN SIMPSON, late of Wortley, has published his book on this subject. Messrs. PAWSON & BRAILSFORD, of Sheffield, are the publishers. It is an 8vo volume of over two hundred pages, with numerous illustrations. The author believes that our forestry system in the past has been the main cause of failure and disappointment in the production of timber crops, and that a more intelligent system might alone turn the scale in the right direction. We have no doubt our system, if it may be so called, is of the usual happy-go-lucky order, and that the adoption, so far as may be suitable, of the more scientific and business-like methods adopted by the Germans, and advocated by the author, would be of incalculable advantage in the long run. We shall revert to Mr. SIMPSON's book on another occasion. In the meantime, knowing Mr. SIMPSON's capabilities, we need not hesitate to recommend his book even before we have examined it in detail.

FRUIT FROM THE CAPE.—During last month there were several arrivals from the Cape, per the Union line, the first, per the *Dunvegan Castle*, a small consignment of Peaches, which sold well. The second, per the *Guelph*, was twelve cases of Peaches, in fine order, which sold well. The third ship was the *Norman*, with 704 cases of fine Plums, and 33 of Peaches. There was a splendid bloom on the Plums, all of which were quickly taken off, at good prices, as also were the Peaches. *Tantallon Castle*, arrived on the 3rd inst., brought 392 cases of Plums, 141 cases of Grapes, and 138 cases of Peaches. Plums, some were "Simoni," large red, in good condition, boxes of 24 running up to 12s. per

box. Others were Golden Drop, fair sized yellow, also in good condition, going as high as 12s. per box of 24. Grapes were small, and slightly hard. They were the first consignment of the season, and must have been picked too early. They were practically given away at Covent Garden, 2d. per pound being the highest price. This shows that care must be taken to send home only fruit in good condition and thoroughly ripe. This lot of Grapes were brought home by a passenger who must have little knowledge of the trade. Peaches: some were in capital condition, running up to 12s. per box of 24. N.B.—All the above fruit was sold privately at Covent Garden, not by public auction. Some Peaches were sold at public auction, and although first class fruit realised very low prices. The result does not seem to recommend the public auction sales. The last arrival to note here is that of the ss. *Mexican*, which arrived on Sunday, 11th inst., bringing 196 cases of Peaches, 290 boxes of Plums, 102 boxes of Nectarines, and 60 boxes of Grapes.

"THE BIRDS OF SURREY."—Mr. J. A. BUCKNILL announces the early publication, through Mr. R. H. PORTER, 7, Princes Street, Cavendish Square, London, of a work on the "Birds of Surrey." It will consist of an introduction divided into two parts; one giving an account of the geographical and natural features of the county so far as they relate to ornithological distribution; the other dealing with what has already been published in connection with the Avi-fauna of Surrey, together with some account of the early local ornithologists. Following the introduction will be detailed a complete account of every species of bird which has occurred in the county, coupled with remarks on the distribution of the commoner, and every detail of the occurrence of the rarer species. The various attempts at the introduction of foreign birds, the ancient duck-decoys, hawking, game preservation, freaks of colour, the causes leading to the diminution of more uncommon species, and the legal effect of the Wild Birds' Protection Act, will also be dealt with. A complete index, a map of the county, a glossary of local names, a list of the works and periodicals consulted in the compilation of the work, a list of the subscribers, illustrations of county localities, and full-page photogravures of six of the most interesting ornithological places in Surrey, will also be included in the volume.

NARCISSUS SIR WATKIN.—The Orchard Company, Scotby, near Carlisle, send us a specimen of this Narcissus, in which the edge of the cup is reflexed and much lobed, almost fringed at the edge. Possibly the appearances may be due to some check to growth.

YEOMANRY FOR THE FRONT.—The nursery trade is well represented in the patriotic offers for service in the field. The latest additions to the Hampshire Yeomanry include the names of Mr. JESSE BIDE, Mr. ERNEST BIDE, and Mr. BERTRAM CRABBE. The first-named being the youngest son, and the two latter nephews of Mr. SAMUEL BIDE of the Alma Nurseries, Farnham, Surrey. Mr. B. CRABBE left on board the *Goth*, and the others wait embarkation orders. Mr. C. C. HURST, a member of the well-known nursery firm at Burbage, Hinckley, is already serving at the front.

THE GALE IN THE NORTH.—A hurricane, the like of which has not been experienced in the north since the memorable night of the Tay Bridge disaster, swept over the N.E. of Scotland on Thursday evening and Friday morning, 15th and 16th inst., doing considerable damage. Especially had this been the case in the Methlic Woods, Aberdeenshire, on the estate of the Earl of Aberdeen.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held in the lecture-hall of the Institution on Monday, Feb. 26, 1900, when the adjourned discussion on the paper read at the last meeting by Mr. H. T. SCOBLE (Professional Associate), entitled "The Bacterial Treatment of Sewage," will be resumed. The

chair will be taken at eight o'clock. It has been decided, on the invitation of the Yorkshire Provincial Committee, to hold the next county meeting at Leeds, on April 25 and 26. The first day will be devoted to papers and discussions, with a dinner in the evening; the second day to excursions to various places of interest in Leeds and its neighbourhood. Full particulars will be issued a little later on.

A SALUTARY REFLECTION AND A GOOD RESOLUTION.—At the friendly dinner which followed the recent meeting of the Royal Gardeners' Orphan Fund, Mr. ASSBEE said that a gardener who is married and has children should reflect—"If I live to old age, I may require assistance from the Gardeners' Royal Benevolent Institution. If death overtakes me earlier, my children may need the help of the Orphan Fund." "Such a reflection," said Mr. ASSBEE, ought to induce any gardener to resolve that he will subscribe to both funds." We think so too.

SOCIETY FOR THE PROTECTION OF BIRDS.—The annual general meeting of the above society will take place on Monday, February 26, 1900, at the Westminster Palace Hotel, Victoria Street, S.W. The chair will be taken at 3 P.M. by the Most Hon. the Marquess of GRANBY.

PUBLICATIONS RECEIVED.—*One and all Gardening*, 1900; a popular annual for amateurs, allotment-holders, and working gardeners. Edited by E. O. Greening (Agricultural and Horticultural Association, Long Acre, W.C.).—*Nature Notes*, February (John Bale, Sons, & Danielsson, Great Titchfield Street).—*Anne Pratt's Flowering Plants*, vol. iv., Nos. 33 and 34. Edited and revised by Edward Step, F.L.S. (Frederick Warne & Co., 15, Bedford Street, Strand).—*The British and Colonial Druggist*, February 2 (44, Bishopsgate Without, E.C.).—*The Theory of Water Finding by the Divining Rod*. By B. Tompkins (published by the author, Chippenham, Wilts.).—*The Orchid Review*, an illustrated monthly journal, devoted to orchidology, February (Marshall Brothers, Kewick House, Paternoster Row, E.C.).—*Garden Lawns, Tennis Lawns, Putting Greens, Cricket Grounds*. By Sutton & Sons, Reading (Simpkin, Marshall, Hamilton, Kent & Co., London).—*Woman's Agricultural Times*. Edited by the Countess of Warwick, February (Lady Warwick Hotel, Reading; Messrs. John Haddon & Co., Bouverie House, Salisbury Square, E.C.).—*Tropical Agriculturalist*, January (A. M. & J. Ferguson, Colombo).—*Queensland Agricultural Journal*, vol. v., part 6, December.—From the Department of Agriculture, Sydney, N.S.W., Miscellaneous Publication, No. 282, *Native Food-Plants*, by J. H. Maiden; and No. 351, *A Second Contribution towards a Flora of Mount Kosciusko*, by J. H. Maiden.—*Bulletin of the Botanical Department, Jamaica*. Edited by W. Fawcett, B.Sc., F.L.S., December.—*Indian Gardening*. Edited by H. St. J. Jackson, F.L.S., Calcutta, January 18.—*La Semaine Horticole*, Feb. 8 (Brussels).—*Catalogue des Plantes Economiques pour les Colonies, arbres a fruits des Tropiques, plantes utiles, officinales, medicinales, et autres Vegetaux precieux pour les Colonies de "L'Horticulture Coloniale"* (Parc Leopold, Brussels, Belgium).—*Annales Agronomiques*, January 25 (Paris: Masson et Cie., 120, Boulevard Saint Germain).—*Notice sur l'Exposition Centennale et l'Exposition Contemporaine de 1900*. Par A. de la Devansaye (Paris: Octave Doyn, 8 Place de l'Odéon).—*Liste des Graines offertes par le Jardin Alpin d'Acclimatation* (3, Rue Dancet, Plainpalais, Geneva); H. Correvon.—*Müller's Deutsche Gärtner-Zeitung*, Erfurt, February 8.—*Botanische Zeitung*, title-page and index for 1899, and the issue for February 1 (Leipzig).—*Gartenflora*, February 1 (Berlin: 46, Schönebergerstrasse).—*Rosen Zeitung*, December. Redigiert von P. Lambert, Trier-a-Mosel (published at Frankfurt-a-Main).—*Mitteilungen der unter dem Protectorate ihrer k. u. k. Hoheit der durchlauchtigsten Kronprinzessin-Witwe Frau Erzherzogin Stephanie stehenden K. K. Gartenbau-Gesellschaft in Steiermark*. February, 1900.—*Botanisches Centralblatt*, Band lxxxi., Nos. 5 and 6.—*Moor und Alpenpflanzen* (vorzugsweise Eiszeitflora), des Alpengartens Zöschel bei Merseburg und ihre Cultur. Dr. C. Dieck (Druck und Verlag von Ehrhardt, Karras in Halle-a-S.).—*Wiener Illustrirte Garten-Zeitung*, January (Wien K. und K. Hofbuchhandlung der Wilhelm Frick).—*Thirty-seventh Annual Report of the Secretary of the State Board of Agriculture of the State of Michigan, and Eleventh Annual Report of the Agricultural College Experiment Station*, July 1, 1897, to June 30, 1898. Containing a valuable paper on "Some Insects of the Year 1897," by W. B. Barrows and R. H. Pettit.—*Nuovo Giornale Botanico Italiano*, vol. vii., No. 1. Gennaio, 1900.—*Bullettino della Società Botanica Italiana*, November-December (Firenze).—*Our Patent Laws*, by James Keith, C.E. Revised to suit the present situation, with an additional article on "American Competition," closely bearing on the subject.—*The Gardening Year Book and Garden Oracle*, 1900. By the Editor of the *Gardeners' Magazine*. This is the forty-second annual issue of this useful publication (*Gardeners' Magazine Office*, 4, Ave Maria Lane, Paternoster Row, E.C.).—*Willing's Press Guide and Advertisers' Directory and Handbook*, 1900. Twenty-seventh year of the publication of a work invaluable to all connected

with journalism (J. Willing, 125, Strand, W.C.).—*The Agricultural Journal of the Cape of Good Hope*, vol. xvi., Nos. 1 and 2, for January 4 and 18 (Cape Town: Townsend, Taylor, & Snashall).—*The Botanical Gazette* (Chicago, Illinois). Contains articles on: The Mechanism of Root Structure (with figure), by James B. Pollock; Botanical Bibliography, by W. G. Farlow, and other less important papers.—*Le Mois Scientifique*, publié sous la direction du Professor H. Girard (Bureaux de la Revue: Librairie J. B. Baillière et fils, 10, Rue Hautefeuille, Paris), February, 1900.—*Journal de la Société Nationale d'Horticulture de France*, with portraits of several of the Presidents, January (Paris: 84, Rue de Grenelle).—*Gartenflora*, February 15 (Verlag von Gebrüder Borntraeger, 40, Schöne -Vergersstrasse).—*Gärtnerisches Zentral-Blatt*, December, 1899 (Charlottenburg, Berlinerstrasse, 88, a.).—*Phanerogamie et Pteridophyte Japonicae Iconibus Illustratae*; or, *Figures with Brief Descriptions and Remarks of the Musci, Hepaticae, Lichenes, Fungi, and Algae of Japan*. Edited by J. Matsumura and M. Miyoshi (Tokyo, 1, Urazimbocho, Kanda), December 29, 1899.—*Bullettino della R. Società Toscana di Orticultura*, Gennaio, 1900.

BOOK NOTICE.

THE TEACHING BOTANIST, ETC. By W. F. Ganong. (Macmillan & Co.)

We are not ashamed to own that we are wearied with the profusion of elementary books on botany. Good, bad, and indifferent, there are far too many of them. The book before us, which is also entitled "A Manual of Information upon Botanical Instruction," is so novel in its treatment, so fresh in its matter, and so full of useful suggestion, that it acts as a bracing tonic after the surfeit of characterless books.

In the first place, it is addressed mainly to the teacher, not to the pupil, and dull must that teacher be who does not profit in some way by this outspoken book.

Man, says the author, has attained the position he has in the world through the possession of one supreme characteristic—mind. The purpose of education is to enable the possessor to make the best use of this great endowment. "Of all the many problems of education, the one nearest to the surface is this—to determine the proper balance between mind-training pure and simple and the training of the mind for the practice of a particular business." The schemes of education generally followed, the too exclusive study of one or two ancient languages, or of mathematics, find little sympathy with the author. Admitting the different requirements of different minds, he yet sees that in the near future the sciences must be elevated to full educational rank with any and all other subjects. So far as botany is concerned, the author asks, What botany is of most worth? And he answers that question by telling us that no one part is more important than any other, but that in teaching, selection becomes imperative, and it is necessary to find out what will give the best returns for the time and energy expended.

The very foremost thing is exact observation, and for training in observation anatomy, dealing with actual structure is the best possible discipline. By anatomy Prof. Ganong here means external morphology. This is shown by the example he gives devoted to the outward appearance of seeds, such as that of the Bean or Horse-Chestnut. These are taken as subjects for the first lesson wherein the pupil is made (with, in the first instance, but little help from the teacher) to investigate for himself the general appearance and conformation of certain conspicuous seeds.

After observation, the Professor puts critical comparison and generalisation, so as to enable the student to eliminate what is relatively unimportant, and grasp that which is essential. For this purpose nothing is better than morphology as studied in the investigation of the shoot, root, flower, and fruit of the higher plants.

Causation comes next in importance: the pupil must not only see and observe that a leaf has a particular shape or position, but he must be perpetually seeking the reason why. Here the great value of experiment comes in, "There is nothing

in botany to equal simple physiological experiment on such topics as respiration, photosynthesis, absorption, geotropism, where the object of the experiment is perfectly distinct, and the results obtained are positive and logically conclusive.

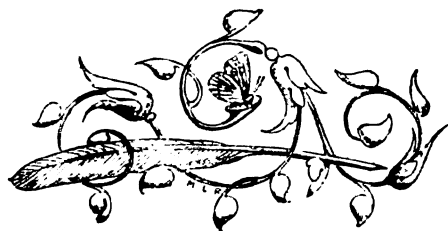
A third chapter deals with the things essential to good botanical teaching, the main point being the ability and sympathetic endowments of the teacher himself.

Scientific drawing and descriptions next receive the attention they merit. The equipment of laboratories forms the subject of the fifth chapter, which is followed by others dealing with botanical collections and botanical books.

A valuable section is that devoted to "some common errors prejudicial to good botanical teaching." Foremost is the notion that botany is synonymous with the study of flowers. The author also objects to the notion that anthers and carpels are modifications of leaves, because both the anther and the ovule are sporangia. What then? Are not the sporangia developed in leaves which are adapted for the purpose?

The second part of the book comprises a series of exercises and studies to be worked out in the laboratory, and does not materially differ from the directions given in other books of similar character, unless in the greater stress laid on "Ecology," or the study of the adaptations of flowers, &c., to external conditions.

We cannot further follow the author in his statement of his case, but we recommend all thoughtful teachers to read the book for themselves.



HOME CORRESPONDENCE.

THE PROTECTION OF FRUIT BLOSSOM ON WALL-TREES.—It is many years since it was pointed out in the *Gardeners' Chronicle* and other journals that during the winter and early spring our stove and other fruit-trees and bushes need protection from sun-heat rather than from cold. Given well-ripened wood, the cold of an ordinary winter does no harm to the closed buds. And yet the common practice is to keep our wall fruit-trees in a position on a wall in winter and spring exposed to the extremes of heat and cold. Mr. Sharpe's simple expedient of unailing the young wood from the walls may retard the blooming of Peaches, Nectarines, Apricots, Pears, Plums, and Cherries (see *Gardeners' Chronicle*, p. 92), for about one month, means usually a crop of fruit saved, and the health, vigour, and cleanliness of the trees maintained. Long experience among fruit-trees enables me heartily to support Mr. Sharpe's methods. In fact, I have often gone further on the same lines, through practically removing them from their hot environments against brick walls, with equally good results. The cooler the trees are kept during the winter, the greater certainty of a crop the coming season. I agree with Mr. Sharpe that the fish-net let drop from the coping to the ground, affords but little protection against frost and sunshine. I have no wish to set your correspondent against it, as I have found a multiple thickness of fish-nets very effective. Another detail, too, the pruning of the young wood in the first week in February might be objected to, and not a few growers might think it safer if training and pruning proceed together at a later date. Mr. Sharpe's easterly trend in his south Peach wall doubtless helped him in ensuring good crops by giving the wall a less warm aspect. The unailing of Peach and Nectarine trees to promote dormancy till a late date in the winter often been carried very much further than is

recommended by your correspondent. Strong stakes have been driven in 3 or more feet from the walls, and the trees removed and secured to them. To do this afford the trees a steady, regular temperature through the winter. This method affords facilities for cleaning the trees and walls of insects, and provided the wood is well matured and the trees are unailed soon after the fall of the leaf, I have never known it to be injured by frost. D. T. F.

THE QUINCE IN SUSSEX.—It is pleasing to note that Dr. Bonavia is again to the fore; ever thoughtful in his endeavours to enlarge the number of our national home industries, some of which, he thinks, if they received right and proper attention, might be made lucrative in a larger or a lesser degree. A while ago, it was our vineyards that should be "seen to." Now it is the Quince which, he assumes, may easily be turned into a profitable channel by the simple process of making Quince cheese. Nor is he by any means wrong in this respect, saving and excepting that he seems to be unaware that it is a product that has been made in Sussex and Kent, though to a limited extent only, from time immemorial. Thus there is no need whatever to send to Italy for a Quince-cheese, or what is there termed "cotognata" maker, for so long as I can remember, which is over three-score years and ten, it has been one of our most valued and delicious of farm-house condiments, though not made of the dimensions given by the genial Doctor. They, the cheeses, being mostly of what is termed the small gallipot size, for the reason that when fresh from the jar, mould, or jam-pot, there is or should be a delightful aroma which also adds to the piquancy of the flavour, which by exposure becomes flat, and is lost; therefore, when used as a part of the dessert, the cheese should be "fresh and fresh." Nor is this all, for if a small "cheese" is divided into lozenges or cubes, and one or two allowed to dissolve on the palate, it is a remedy exceedingly helpful in soothing the ordinary sore throat. The making is easy. The fruit is gathered ripe and dry; it is carefully wiped, cut small, and put into a copper jam-pan or skillet. It is then, unless very juicy, just covered with warm water, and allowed to simmer gently; after a short time, a pound of sugar to each pound of fruit is added (some prefer less), when again more simmering, until the pulp and juice become somewhat red, when the whole is taken out and strained through a very fine hair-sieve. This done, the thick juice is put back into the stew-pan, and simmered until it becomes thick, when it is at once removed from the fire and poured into different-sized gallipots, shallow jam-jars, and earthenware moulds or shapes. Then all are put in an airy place, and when perfectly cool, are covered with paper. In about two months it is fit for use, yet will improve in density and flavour for at least twelve months, and even more—some of my own has been kept nearly two years. Also from the Quince is made an elegant and tasteful jelly, which may be used for flavouring, or eaten *au naturel*. And what is nicer, when properly made, than Quince marmalade, with a slight admixture of the Seville or Tangerine Orange! Truly, Dr. Bonavia is right. There ought, there should be, and, as a novelty, there must be, the germs of a profitable home industry in the making of Quince cheese, jelly, jam, and marmalade. But the fact must not be overlooked that the practical and busy housewives of Kent and Sussex are equally commendable for their excellent and most enjoyable Damson and Bullace cheese, and these, equally delicious with the former without any doubt whatever, should all take a high place among our "old time" luxuries. Why is it that the Bullace is now so seldom grown? In my younger days no southern farm, homestead, "plantings," or orchard, was thought complete without at least one Quince-tree, two or three Bullace bushes, and the same of Damsons, and these mostly about the banks or hedgerows. Even in the gardens either in bloom or fruit they were thought by "the old folk" to be pretty. Though somewhat digressing, perhaps I might be allowed to say this—furthermore, formerly a kind of essence or preserved juice of the Quince was made, and used with water as a summer-drink, in the same way as Raspberry-juice or vinegar; also, there was a wine made from Sloes, of which the jovial tillers of the soil used to say that it was an excellent substitute for port, while with others it was called Rough Robin. Why the last name I know not. And yet another "wine" was made from the tendrils of the

Grape-vine gathered young, macerated in water with sugar, and some spirit added, mostly brandy. This was said to be "a very pretty drink." As regards myself, some fifty years since I tasted it once, and being satisfied, have not enquired about any since. But in bygone times, they of the farm and homestead had many dainties this age wots not of. Harrison Weir.

POT-BOUND ANTHURIUMS.—Many plants continue to flower abundantly, though they are pot-bound, if supplied with moisture and other requirements. We have found no plant do better than *Anthurium Scherzerianum*, and its varieties. We have some old plants in capital health, full of vigour, which have not been shifted for some ten or a dozen years, but each season they have flowered profusely from February until August. They have been given a surface-dressing with bone-meal and fibry peat before flowering each year. Some varieties of *Cypripediums* and *Cymbidium*s have also succeeded with us under similar treatment. They may be watered liberally under such conditions without fear of doing damage to the roots, but neglect of same is most injurious. W. Temple, Carron, N.B.

THE NOMENCLATURE OF HARDY PLANTS.—Now that nurserymen are about to send out their new catalogue of hardy plants, it is the time to say a few words on this subject. The orthography and authenticity of the botanical names and synonyms hardly meet with the attention they deserve on the part of the compilers of these catalogues. It would be a great help to amateurs who wish to have their collections correctly named if nurserymen would consent to adopt some uniform standard of naming, and this standard is already provided for them at a reasonable cost by the official *Key Hand-list of Herbaceous Plants*, to be obtained free by post for 1s. 3d. from the Royal Gardens, Kew. This hand-list may be said to include, with few and rare exceptions, every hardy plant in cultivation in England, and has been carefully prepared and corrected up to the date of publication under the instructions of the director of Kew. The names, both of the genera and the species, are arranged in alphabetical order, and the instances in which a species is to be written with an initial capital letter are all observed in printing. In one particular this catalogue is in advance of *Index Kewensis*, namely, that it limits the use of initial capitals for species: (1), to names which have either been names of a former genus now absorbed in a newer genus, or to old classical plant names which are added as (3), nouns in apposition with the present name of the genus, and (2), to substantive proper names, whether personal or geographical. Formerly, as in *Index Kewensis*, adjectives derived from personal names, when given to species, were printed with an initial capital, a privilege from which geographical adjectives used as specific names, were excluded: but the director of Kew has adopted the rule as stated above, which is more consistent and simple. Examples:—

<i>Inula Hookeri</i>	<i>Crocus Tauri</i>
<i>Hypericum hookerianum</i>	<i>Onosma tauricum</i>

A. Wolley Dod, Edge Hall, Malpas.

GROS GUILLAUME GRAPES.—This once popular Grape is not valued much while others of easier culture and of prolific habit are so common; but the beautiful foliage is much appreciated in many establishments for table-decoration, and for this reason the Vine is often cultivated. I once supplied a large boxful of blooms of *Lapageria* roses and *L. r. alba*, accompanied with small foliage of the Vine indicated, to a lady for decorative purposes for a table where a large company was to dine. There was a charming centre-piece, but the great attraction was a scroll of the two *Lapagerias* intermixed lightly with Ferns placed in glasses resting on the Vine-leaves. I have seen much of this class of work in many mansions and in public halls, but on no occasion have I seen decorative table work so much to my mind. Its simplicity seemed so different from table decoration as it is usually carried out, with heavy and crowded designs that are not always pleasing. The lady referred to did the work herself with the aid of a man-servant. By reason of these pleasant recollections, I have put some value on the Vine indicated. The bunches of this Grape when long and tapering, with berries equal in size, and with fine bloom, are graceful on a table where there is a well-appointed dessert. M. Temple, Carron, N.B.

A SNOW-STORM IN IRELAND.—A snow-storm of unusual severity for this part of Ireland, I am told, fell on the 9th and 10th inst. The depth of snow on the plain was about 7 inches. Drifting has taken place, and the roads in many places were impassable. The snow-storm was followed by severe frost. *D. Brough, Coolattin Gardens, Shillelagh, Co. Wicklow, February 13, 1900.*

LARGE CEDARS OF LEBANON.—On p. 106 of the *Gardeners' Chronicle*, reference was made to these noble trees, from *Transactions of English Arboricultural Society*, vol. iv., part ii. "Dimensions were given of different trees, the one growing at West Wycombe being stated to have a quarter girth of 71 inches, or nearly 24 feet at 5 feet in circumference from the ground, the largest Cedar ever seen by any arboriculturist present when the trees were inspected last August." It may interest those gentlemen, or other readers of these pages, to learn that at Goodwood may be seen, without doubt, the finest specimen in the country. It has one clean stem, the girth at 5 feet from the ground being no less than 29 feet 6 inches. At this point, however, it is where the massive limbs commence to divert from the stem. The smallest measurement of the latter taken at 3 feet from the ground, exceeds 25 feet 11 inches. The height is rather more than 100 feet; spread of branches 130 feet. This specimen, together with many others, was planted in 1760. *Richard Parker, Goodwood.*

CRINUM MOOREI ALBUM OR SCHMIDTII OR MAKOYANUM.—The *Crinum* represented on fig. 29, p. 98, of last week's issue of the *Gardeners' Chronicle* is undoubtedly the three-named variety above mentioned, and not, as the sender of the photograph believes, *C. capense*, which is better known as *Amaryllis longiflora*, and is a far inferior plant in beauty to what is here figured. I grow the above-named plant in quantity in the greenhouse, but do not consider *C. capense* worth growing at all. *W. E. Gumbleton.*

CHANGE OF POTATO SETS.—My experience convinces me that Potatoes do not crop well when we continue to plant sets from our own gardens for a longer period than four or five years. The fact is, the Potato, like many other plants, degenerates, and subsequently the tubers become small and the crop consequently light. The only way to remedy these evils is to procure sets from a different quarter and soil, the farther away the better, that is if it be wished to grow the same varieties, and we cannot afford to dispense with some of our older varieties, these being better in every way than the new. I would advise everyone to buy in each year two or three novelties, and test them; and if these are suited to the soil, then it is an easy matter to increase the stock. Such varieties as *Rivers' Ashleaf*, *Early Ashleaf*, *Early Rose*, and *Windsor Castle*, will require something very good indeed to oust them from our gardens; although among the newer ones, I find *Sutton's Ninety-Fold*, *Sutton's Seedling*, and *Early Puritan* are excellent varieties. *A. J. L., Wyfold Gardens, Reading.*

APPLES, ETC., AT SHERBORNE CASTLE.—On p. 60 there was published a note by Mr. Turton on *Newton Wonder* and other Apples, which gave rise to a discussion on the keeping qualities of the Apple mentioned, and in one case a suggestion was made that Mr. Turton's method of keeping the fruit was at fault. Having seen the Apples when they were stored, and again in November and February, I can endorse all Mr. Turton said regarding this Apple. Seldom have I seen better preserved or finer fruits of *Annie Elizabeth*, *Blenheim Orange*, *Cox's Orange Pippin*, *Cockle's Pippin*, and others, than I saw a fortnight ago in Mr. Turton's fruit-room. At the time of my visit some old Vines of the variety *Mrs. Pince* occupying a house, but so old that they have ceased to be productive, were being removed. The old border was to be taken away and a new one made. When the house is replanted, Mr. Turton intends to plant some of this variety again, and as I tasted some of the fruit ripened last year, I thought the high flavour and perfect condition of the berries justified such a course. *Sherborne Castle* has long been celebrated for fruit. I remember the fine Pines grown there over thirty years ago. Also the late Mr. Pragnell's experiment with *Golden Champion Grape*, and the failure that attended this; starting about twenty strong canes in large pots at the end of the year. *Primulas* have recently made

a glorious display at *Sherborne Castle*; they are found to be exceedingly useful as vase plants in the dwelling-rooms. There was not a poor plant amongst them, and the strain was of the best. *Freesias* are grown in large numbers, and most of them are in 5 and 6-inch pots, which contain from five to ten bulbs each. Amongst other useful plants for house decoration I noticed a nice batch of the old *Gesnera cinnabarina*; they are very ornamental with their long spikes of bright flowers rising out of the deep red leaves. These gardens are not favourably situated for the growth of some crops. I noticed how some dwarf Scotch Kale had suffered from the frost in December last, but here in our own garden, the dwarf and very curled types have suffered most. *J. Crook, Forde Abbey Gardens, Chard.*

SALE OF HORTICULTURAL POISONS.—I have no interest in trade of any kind, but I am a reader of one of the chemist's trade journals, and I feel it impossible not to be indignant at the unnecessary course of action pursued by the Pharmaceutical Society, under an Act of Parliament which never could have had the intention read into it by the Society. The Society cannot possibly free itself from trade interests, and the question arises whether the Society should have any power of legal action. Professional loyalty, so absent among horticulturists, is a good deal overstepped by the pharmacist. It is only necessary to observe what is written on the subjects of company trading, whether the widow might or might not continue the business of her late husband, and upon the prescribing of ready made tabloids by the medical man, to see that the professional chemist is much more concerned about the exclusiveness of his trade, than about the public safety. It could hardly be otherwise, and therefore I impute no unworthy motive. The public interest is not at stake, and cannot be the question in the mind of the chemist, with regard to the sale of these poisons. The claims of the chemist, in regard to dispensing, are in accordance with the public interest, but it is too ridiculous to say that it makes any difference whether a sealed-up packet or cask is sold by a chemist or by a seedman. According to my experience, it is entirely a myth to suppose that the chemist does anything more than effect a sale, precisely as does the seedman. No accident has yet been charged against the seedman, and, as a matter of fact, both chemist and seedman are equally helpless in following the poisons to where any danger can arise. The only way of securing absolute safety is the impossible way of prohibiting the sale of poisons altogether. Something, however, might be done in that direction. According to law, machinery has to be protected in workshops, and there might be some regulation made to secure the proper storage of poisons. Is it not absurd to hamper the seedman, while the poisons sold by the chemist are often free to everybody after they have left his shop? Poisons are necessary in many businesses, and the majority of people must always be able to get what they want. It does not matter where it comes from. *Fiat Justitia.*

CANNA AUSTRIA.—In reference to an enquiry by "S. W." in last week's issue of the *Gardeners' Chronicle*, it may interest this correspondent to be informed that I grow very large batches of *Cannas* very easily. *Canna Austria* and *C. Italia* I start about this date in 48's, in a humid house, having a temperature of 65°; and when the pots are well filled with roots, I repot the plants into 10-inch ones, putting plants from three 48's into each; fibrous loam in a roughish state, leaf-mould and horse-droppings compose the potting-soil, and as much coarse sand as will keep the compost porous. The plants are still kept in a warm-house, and the syringe is freely used on them till they begin to show flower, when the plants are gradually hardened-off. I am thus enabled to obtain fine vigorous foliage and large plants, which look quite imposing in the conservatory, the pots being hidden with Ferns and other *Cannas* grown in smaller pots. *Henry Cooper, Vyse Court, Bishops Stortford.*

SUPPLY OF GRASS SEEDS TO KEW, ETC.—Mr. John K. King, Royal Seedsman, of Coggeshall, Essex, and Reading, has again received a request from H.M. First Commissioner of Works, to supply the whole of the Grass Seeds required this year for sowing in the Royal Parks, and Royal Gardens, Kew.

CULTURAL MEMORANDA.

ASPIDISTRAS.

THESE are among the most useful of town plants, and, indeed, for any house where gas is used. Both *A. lurida* and the variegated form are equally hardy, and with a little attention will flourish in positions where most other kinds of plants collapse in a few days. The present is a suitable time for the propagation of these useful plants. It is usually accomplished by pulling those plants not required into pieces, each with a leaf or two, and potting up into a mixture consisting of fibrous loam, a little leaf-soil, and coarse sand. Although a warm house is not necessary, the plant being almost hardy, a little warmth after division will start growth and root action, and the plants recover quickly. A Peach-house or vinery which was started at the new year will afford a temperature suited to their present requirements; and as they are rarely infested with any insect pests, they may be safely introduced to such structures. In the summer both large and small plants are useful for grouping in the fireplaces of mansions and other out-of-the-way positions, where they last in good condition throughout the season, their only requirement being an occasional cleansing of the foliage, and a moderate supply of water at the roots. *C. H.*

IRELAND.

THE WEATHER.

THE climate of the metropolis and adjoining counties has certainly been very trying to all forms of vegetation, and much injury has been done to out-of-door crops in gardens. The weather has since changed; the following notice concerning this brief spell of winter has been issued to the press by Mr. F. W. Moore, Curator to the Botanic Gardens, Glasnevin:—"It may interest your readers to know that on Saturday night last the minimum thermometer on the grass (a registered and certified instrument) registered 22° of frost, falling to 10° Fahrenheit. This was the coldest night registered here since December 15, 1882, when there were 22·4° of frost; on December 24, 1878, there were 27·4° of frost."

FATALITY.

On February 11, an accident, attended with fatal consequences to Mr. J. English, the gardener, occurred in the gardens of the Oblate Fathers, at Inchievre (Dublin). He was engaged in pruning, fell to the ground, and died shortly after admission to the hospital. *A. O'N.*

PRUNING OF THE VINE.

THERE is hardly a more important operation connected with the culture of the Vine than that of pruning, for upon the manner in which this is performed, the longevity and future vigour of the plant will greatly depend. In the first place it is necessary to select a suitable time for doing the work. If there are at present Vines still unpruned they ought to be attended to without further delay, or bleeding will undoubtedly ensue. We find the best time for pruning late Vines to be in December, so soon as the Grapes are cut and placed in tins or bottles in the fruit-room. By doing so then, we are able to throw open the vinery and disperse with fire-heat for a few months, thus giving the Vines a complete rest. If the Grapes are allowed to hang upon the Vines until later (as sometimes happens, when other important work yet remains to be done), not only do they shrivel and decay more quickly than if they were in the fruit-room, but the Vines also experience no real rest, because a certain amount of warmth is required to maintain the fruit in good condition, necessitating the partial closing of the house.

Forced Vines, of course, will necessarily have to

be pruned earlier in the season; we cut back those in our first house in October, starting them again in November. Bleeding is not so liable to take place with these as with Vines pruned in January, for the sap does not flow so readily at that season, even in Vines regularly forced, as it does in others at a later period. Spur-pruning is now invariably practised with most varieties, and proves the most convenient and satisfactory if carefully performed.

Most cultivators at the present time advise shortening the ripened wood of the previous summer to the best bud, whether this be close to the base of, or an inch or two, along the shoot.

This system, however, in my opinion, is not one to be altogether commended, and I think the necessity of having to leave so much wood to retain a good bud, somewhat tends to show faulty culture the preceding summer. By following such a practice, in a few years' time the spur becomes very long, and besides being most unsightly, it would be also detrimental to the welfare of the tree.

Much valuable space is thereby wasted, the shoots are crowded together—a condition which prevents their proper ripening, and it is also easily noticeable that the spur decreases in size and vigour every year when allowed to lengthen to such a degree. In a late vinery there should be no difficulty in finding a sufficiently plump bud quite close to the base of the shoot to which to prune the latter—usually there are two or three of them. If, supposing the second or third bud from the base were larger and apparently more likely to produce a better shoot than the bud below, I would still cut the shoot down to this latter, for I believe that whatever slight advantage is gained by leaving the larger bud, is equalised, probably, by the subsequent vigour of the lower shoot; at all events, certainly by the future strength and continued fruitfulness of the Vine.

By keeping the spurs as close to the stem as one is able, the resulting shoots are much stronger and healthier than those from long and weakened spurs. I know that in the case of early forced Vines it is a more difficult matter to find a good bud suitably placed near the base of the shoot, but I would rather prune to an indifferent-looking bud well back, than to a plump one a good deal higher.

Much can be accomplished during the previous summer to secure the development of suitable buds low down, by pinching the young shoots judiciously—not allowing them to become too long before doing so—and endeavouring to have them as short-jointed as possible, towards which condition a properly-regulated temperature and suitable atmosphere are most essential. Do not allow them to become crowded, either by the growth of laterals and sub-laterals, or by the presence of too many spurs; a free admittance of light and air is very necessary.

After the fruit is cut, I make a practice of semi-pruning the ripening wood; that is, I shorten this back to about half its length, believing this to assist in developing and plumping-up the back buds. It will often occur that the two lower buds are smaller than the next one above, and I think if the shoot were cut back as I have mentioned, this would not so frequently be the case. I remember a vinery in which the Vines were about fourteen years old, and though they had only been forced for some four or five years, they were completely worn out, and hardly able to produce fruit at all. Their failure I attribute in a large measure to the system of pruning practised; some of the spurs were quite 12 inches long, and if it had not been for some young wood trained up from the base of the trellis, fruit would have been altogether absent.

Where there is room, and it is thought necessary, it is an excellent plan to introduce young rods from the base of the older ones, and to train them alongside these—eventually, to take their place altogether.

In the case of a spur dying off, as happens not infrequently on hard-forced Vines, the shoot from the spur immediately below may be allowed to extend so as to fill the gap.

There are a few varieties of Grapes which pro-

duce soft wood, and this often ripens badly. For such as these, the method of pruning known as "the long-rod system" is generally recommended, that is, as much young wood for bearing is introduced as there can be found space for, instead of relying on short spurs for the production of fruit. This system, however, is easily abused if too much young wood be introduced, and left at too great length at the annual pruning; the formation of soft and immature wood is certain to increase.

Such varieties, too, must not be planted in so rich a soil as that generally used for a Vine-border, as the tendency of the plant to produce soft shoots would thereby be increased.

Another cause of failure to successfully cultivate the Vine, I believe, lies in the fact that when pruning young Vines, too much of the leading shoot is left annually, resulting in the formation of weak and useless spurs. Only so much should be allowed to remain as can be furnished along its full length, with good, sound fruit-spurs. H. H. T.

LAW NOTES.

INTERESTING SEED CASE.

In the City of London Court, on Friday, an action was brought by Messrs. Howcroft & Watkins, 10, Floral Street, Covent Garden, against Mr. R. W. Gardner, Romford, to recover the sum of £6 15s. damages for breach of contract in respect of certain Swede Turnip-seed.

Mr. W. R. Huson, plaintiffs' solicitor, said that the plaintiffs bought the seed of the defendant on the understanding that it was 1898, or new seed. The plaintiffs, upon applying the ordinary test, which was well known in the trade, found that the productiveness of the seed only yielded 66 per cent., and not 98 per cent.

Mr. Chas. Butcher, defendant's solicitor, said that the parties were well known to each other, for the defendant had been in the plaintiffs' service for twenty years. He had sold them the seed in question the day after he had purchased it. They retained it for two months before they found any fault with it. The practice was to test seed within a week. The plaintiffs had dealt with the seed before rejecting it.

Mr. Watkins, plaintiffs' manager, was called, and spoke to having purchased 8 or 10 bushels of the seed in question at 13s. 6d. per bushel. He understood he was buying new seed, and that meant that it was the previous year's seed. They usually tested seed immediately it came into their warehouse. The seed in question was tested in flannel and then in soil.

Mr. Butcher explained that the plaintiffs should have rejected the seed within a reasonable time, and that they did not do. The defendant was called, and said that he bought the seed in question for 11s. 6d. a bushel. Knowing that the plaintiffs wanted some of the same sort he offered it to them, and they bought it, his profit being £1 on the transaction. Two months after the deal the plaintiffs wrote and told him that the seed did not grow well. Mr. Paul Ursulas was called to prove that the seed had yielded 90 per cent.

The Deputy Judge said he came to the conclusion that there was a warranty that the seed was new seed. Judgment was given for the plaintiffs for £2 5s. as damages, with costs of the action, and they would keep the seed.

NURSERY NOTES.

MESSRS. JAS. VEITCH AND SONS.

GREENHOUSE Rhododendrons have been making a good display in the houses devoted to their cultivation at the Royal Exotic Nursery, King's Road, Chelsea, and at the present time there are over thirty fine and distinct forms in pink, rose, yellow, orange, scarlet, and red tints. The plants are furnished with flower-buds in all stages of develop-

ment, which indicate a considerable quantity of bloom yet to expand. Among the double-flowered kinds known as *R. balsaminiflorum*, four are in bloom, viz., aureum, album, roseum, and carneum. Of the others, the best pure white is *R. Mrs. J. Heal*; of the red and orange, *R. Souvenir de J. H. Mangles* was fine; *R. Little Beauty*, a rich red-scarlet of a new section, very free-flowering like others of the *R. multiflorum* crosses. Other very handsome varieties noted were *R. Cloth of Gold*, *R. Primrose*, *R. Hercules*, *R. Princess Christian*, *R. Lord Wolseley*, *R. Apollo*, and *R. Thetis*. These hybrid Rhododendrons seem well adapted for growing in the neighbourhood of towns, where softer wooded plants as a rule do not thrive. In a warm greenhouse, or conservatory adjoining the dwelling house, they thrive as well with town surroundings as they do in the country, once their simple culture is understood. In gardens generally, greenhouse Rhododendrons are much too frequently re-potted, and often placed in flower-pots which are too large. Comparatively small pots, and the retention of the plants in them as long as possible without re-potting, are far more conducive to their successful culture.

ORCHIDS.

We noted much that showed the usefulness of some of the hybrid Orchids raised by Messrs. Jas. Veitch & Sons at the present season, the display nearly all consisting of these plants. The Dendrobiums at present are the more numerous, and among the showiest at the present time in bloom, and which form a display throughout the entire length of the long house in which they are placed, we found several forms of the *D. × splendidissimum grandiflorum* class in great beauty, but of that section the handsome *D. × rubens grandiflorum* (*splendidissimum grandiflorum × nobile nobilium*) was by far the best. Several forms of *D. × Wardiano-japonicum* show how great beauty some of these smaller hybrids may develop when the plants become strong. One fine form having a 2-feet pseudo-bulb was densely furnished with its pretty white, rose-tipped flowers. *D. × Stratius* (*moniliforme × Dalhousieanum*) is singular and pretty; *D. × Wiganie*, a very desirable hybrid, and *D. × Dominianum*, *D. × euosmum leucopterum*, *D. × Schneiderianum*, *D. × endocharis*, *D. × dulce*, and other pretty hybrids are very effective. Of the species arranged with these plants are many examples of the singular and showy *D. atro-violaceum*, *D. Wardianum*, *D. luteolum*, *D. crassinode*, *D. nobile* varieties, including the delicately tinted *D. n. Ballianum*, the singular orange-scarlet *D. subclausum*, and other rare species.

Among the Cypripediums in bloom were the new and pretty *C. × Actæus Langleyense* of the form of *C. × Leeanum*, but the colour of *C. insigne Sanderi*; varieties of *C. × Hera*, *C. × Germinyanum*, *C. × Godseffianum*, *C. × Calypso*, *C. × Dauthieri luteum*, *C. × vexillarium*, *C. × Lathamianum*, *C. × Pharus*, varieties of *C. × Harrisianum*, of which the dark coloured *C. × H. superbum* was the best; *C. × Sallieri*, *C. × nitens*; a good show of varieties of *C. Leeanum*, *C. insigne*, *C. villosum*, *C. Lindleyanum*, &c.

In the Phalenopsis house, it was remarked that all the species thrive at Chelsea; and along with the *P. Schilleriana*, *P. Aphrodite*, and other species, was a number of vigorous plants of the many fine crosses raised by Messrs. Veitch, including *P. × Hebe* (*Sanderiana × rosea*), *P. Vesta* (*Aphrodite × rosea leucaspis*), like a large light-coloured *P. intermedia*; *P. × Ludde-violacea*, *P. × F. L. Ames*, *P. × Harrieta*, *P. × Stuartiano-Manni*, &c. *P. × Jas. H. Veitch* (*Luddemanniana × Sanderianum*), bearing a spike of pretty cream-white flowers spotted with dark rose colour; and *P. × Cassandra* (*rosea × Stuartiana*), with very pretty and distinct blooms. It is noteworthy that the hybrid Phalenopsis, as in the case of most other garden-raised plants, even those resulting from very dissimilar parentage, grow and flower more readily than imported plants.

In the Rockery show-house is a good display, con-

sisting of *Odontoglossum Inseayi*, *leopardinum*, and other species; various *Oncidiums*, including the insect-like *O. phymatophilum*, *O. Forbesii*, &c. On one side is arranged a number of hybrid *Epidendrums*, chiefly crosses with *E. Endresii*, *E. Wallisii*, the plants being well furnished with flowers. Among other plants noted were the elegant *Ionopsis paniculata*, the rich rose-coloured *Phaio-Calanthe* × *Niobe*, and the bronzy-rose *P.-C. × insperata*, large pans of *Celogyne cristata* *Lemoniana*, and the white *C. cristata hololeuca*, *Angraecum eburneum*, &c.

In the large *Cattleya* and *Laelia* house, the immense quantity of all the showy species are in grand health, and well-furnished with flower-sheaths, though at the present time a few only of good *C. Trianaei* are in bloom. Remarkable both for quality and quantity is a number of very fine *Cattleya Schroderea*, a species only now becoming fully appreciated; and *C. aurea*, which has always been a favourite.

In one tolerably cool house the stock of *Vanda cœrulea* was remarkable. Another is filled with flowering-sized *Lælio-Cattleyas*, and *Cattleya* hybrids, the newer and flowering plants being yet at the hybrid Orchid Nursery at Langley.

SOCIETIES.

ROYAL HORTICULTURAL Scientific Committee.

FEBRUARY 13.—*Present*: Mr. Bennett-Poe (in the Chair); Mr. Hudson, Rev. W. Wilks, and Rev. G. Henslow (Hon. Sec.).

Elm-bark with larvæ.—Mr. W. Brooks, of Weston-super-Mare, forwarded a piece of bark of an English Elm-tree, with the following observations:—"The Elm-trees are attacked by an insect which is destroying them. Some of the trees are fine, nearly 100 feet high, and in their prime; others are smaller. The larger trees are attacked more especially on the north side; but the smaller all around the stem from bottom to top. One of the largest trees shed all its leaves in August, and it looks as if the whole of the trees will die."

Mr. McLachlan sends the following report:—"The Elms are attacked by the larvæ of a beetle. No perfect beetles are to be found in the bark sent, but there are numerous larvæ, each in a small cell, in which it will undergo its transformations. So far as can be judged from these larvæ, they are those of *Scolytus destructor*, so common in many places. In order to destroy them it was suggested, more than forty years ago, by the late Capt. O. J. Cox (who probably took his idea from the French), that all the old outer bark be pared off by a spokeshave or some similar instrument (the scrapings being of course collected and burnt), taking care not to injure the inner bark and wood. Dressings of dilute petroleum, repeated at intervals in dry weather, might also be of service. But the subject opens up a wider question, viz., whether the beetle is the cause of the condition of the trees, or only steps in where these latter are in a moribund state from some other cause. The writer of these remarks is inclined to think the beetles come as scavengers. At any rate, in the case of tall old trees, probably already 'steg-headed,' it is practically useless to employ remedial measures, and the best thing is to cut them down and burn them—or, at any rate, cart them away at once from the vicinity of trees not already attacked. The bark of such old trees is usually riddled by the larvæ from base to top. When the trees are younger and less tall, remedial measures, such as those suggested, might be tried. Even supposing the trees to be in an unhealthy state from some other cause, the attacks of the beetle must aggravate that state and hasten decay; and if these attacks could be lessened or averted, there might be a chance of the trees recovering from the other conditions whatever they may be. But, as a rule, disease or decay have already proceeded too far before being discovered."

Fern-roots attacked by grubs.—Mr. Burt, The Gardens, Casenwood Towers, Highgate, sent a specimen of soil and grubs with the rhizomes of *Adiantum cuneatum*. Mr. Hudson observed that he was not unfamiliar with them. The specimen was forwarded to Mr. McLachlan, who reports as follows:—"The grubs at the roots of *Adiantum* are those of a species of weevil, probably *Sitona*, but I cannot commit myself to anything more precise without seeing the perfect insects. I should think the best thing to do now would be to turn out the plants from the pots, shake the old soil from the roots, and re-pot in clean earth, taking care to burn all the old with the grubs. When the foliage shows signs of being attacked, go over the pots at night, turn each pot gently on its side, and shake the foliage over a sheet of paper. By this means multitudes of the perfect insects may be collected and destroyed, and the deposition of eggs prevented."

Orobanchæ on Pelargonium.—A plant in flower was received from Frances M. Cooper, Forest Road gardens, Wokingham, described as having "established itself in a pot of *Geranium*." The latter at first showed no sign of diminished vigour; but

now the specimen has come into bloom its host-plant seems to be weakly, and its leaves are turning yellow. The plant does not seem quite like any wild species. The *Orobanchæ* was of a purple colour throughout, but not agreeing closely with any true British species.

THE SCOTTISH HORTICULTURAL ASSOCIATION.

FEBRUARY 5.—A meeting of the members took place at 5, St. Andrew Square, Edinburgh, on the above date. Mr. Mackenzie, the late Treasurer, in the Chair. There was a capital attendance, and as there were no exhibits, the usual routine business of reading the minutes of the last meeting, nomination of new members, and other matters (the latter numbering six), was speedily got through.

This gave Mr. D. T. Fish a long evening for his lecture on 'Plants as Manufacturers.'

Mr. Mackenzie praised the lecture as an outburst of eloquence, and Mr. Fish was, during its delivery, often applauded.

Mr. Murray said that it elevated the life of plants above that of man—which was an error.

Mr. James Grieve spoke of the lecture as a poem, and hoped a big place would be kept for Wallflowers and *Violas*.

The Chairman put the vote of thanks, which was carried unanimously, amidst applause.

Mr. Fish replied in suitable terms.

THE NURSERY AND SEED TRADE ASSOCIATION, LIMITED.

FEBRUARY 9.—The annual general meeting was held at the offices of the Association, 30, Wood Street, Cheapside, London, when the report of the committee of management and balance sheet for last year were adopted.

The report showed that the Association consists of 154 members (which include many of the principal wholesale firms), engaged in the nursery and seed trade in England and on the continent. Twenty-eight members joined the Association last year. One of the main objects of the Association is to give the members the opportunity of giving mutual information through the secretary as to the financial position of traders seeking credit. During last year the Association answered 1386 trade enquiries, being a considerable increase on the previous year, and expended £18 13s. 6d. in obtaining special information in the districts in which some retail traders resided respecting their financial position. For the same period the Association collected for its members debts amounting to £3208.

The annual report contained sections of the Pharmacy Act, under which proceedings have been instituted by the Pharmaceutical Society against nurserymen and seed-merchants for selling by retail compounds for killing weeds on walks and insects on plants. As the members present desired that the Pharmacy Act should be amended to permit of nursery and seed merchants selling these compounds, the subject was referred to the committee of management to consider and determine what steps should be taken in the matter, and to ask the assistance of the manufacturers of, and wholesale dealers in these compounds, in defraying the costs incidental to the preparation and passing of an Act of Parliament.

The President, N. N. Sherwood, Esq. (Hurst & Son); W. J. Nutting, Esq. (Nutting & Sons), Treasurer; H. J. Veitch, Esq. (Messrs. James Veitch & Sons, Ltd.); H. Simpson, Esq.; Messrs. Cooper, Tabor & Co., Ltd.; and John Hayes, Esq. (Messrs. J. J. Hayes), Trustees, were re-elected, together with a Committee of Management.

The President expressed his opinion, and the members concurred, that it was advisable that a fund should be raised to enable the Association to take the opinion of Counsel upon questions affecting the trade, and to contest or support any action for their mutual benefit.

NATIONAL CHRYSANthemUM.

FEBRUARY 12.—The first meeting of the executive committee after the annual general meeting took place on the above date.

A letter was read from Sir Edwin Saunders, thanking the members for re-electing him as President. The Secretary laid upon the table a circular from Messrs. H. Gaze & Son, setting forth particulars of proposed trips to the Paris Exhibition. A report was made as to the recent election to the executive committee, and it was announced that one of the gentlemen elected having refused to serve, Mr. R. C. Pulling, Leytonstone, the next highest on the poll, would take his place. The amendments to the rules made at the annual general meeting were reported. The Secretary called attention to the resolution passed at the last meeting of the executive committee, appointing a Show committee to carry out the arrangement of the various exhibitions, and suggested that the members of that committee should be elected, so that their names could appear in the schedules of prizes; but there being considerable divergence of opinion as to whether or not the present general Secretary should be superseded in that position, the matter was postponed for further consideration. Messrs. E. Beckett, N. Davis, G. Langdon, J. H. Witty, J. Brooks, J. Melfattie, R. C. Pulling, and J. W. Simmons, were elected members of the floral committee; the classification schedule revision and finance committees were appointed, and various other items of business disposed of.

KINGSTON CHRYSANthemUM.

FEBRUARY 12.—The annual meeting of this well-known Society was held in the new Coffee Tavern on the evening of the above date. There was a very large attendance of members. Mr. W. DREWETT presided.

The report showed that during the past three years the Society had to encounter adverse balances, which had been gradually reduced, and now the committee were able to show, after deducting 10 per cent. from all prizes paid over £1 in amount, that after discharging all liabilities, inclusive of over £12 to the late secretary, there would be a balance of just over £3 in hand. Sir J. WHITTAKER ELLIS, High Sheriff, was elected President; Mr. A. W. HOMER-SHAM, Treasurer; and Mr. W. HAYWARD, florist, Fife Road, Secretary. There was a keen contest for the membership of committee, twenty having to be elected. After balloting, most of the old members and several new ones were returned. Of these, twelve are gardeners, and represent a wide area. It was urged that the new committee should take the preparation of the schedule in hand at once, and a meeting for that purpose was fixed for the 19th inst.

ROYAL GARDENERS' ORPHAN FUND. ANNUAL MEETING.

FEBRUARY 16.—The annual meeting of the supporters of this valuable Fund was held on the above date in the Essex Hall, Essex Street, London, W.C. Including the representatives of the press, there were present about thirty persons. The Chairman of the Executive Committee, Mr. W. Marshall, was absent through indisposition, and other prominent supporters of the Fund were unable to be present from the same cause. The chair was taken by A. W. G. Weeks, Esq.

EXTRACTS FROM THE REPORT OF THE EXECUTIVE COMMITTEE.

In presenting their twelfth annual Report, the committee have pleasure in congratulating the subscribers on a year of steady progress, the receipts from all sources showing an increase of £75 1s. 2d., which is satisfactory as indicating that, notwithstanding the great difficulty experienced in collecting subscriptions, owing to the many urgent appeals made to the benevolent for support in aid of the various patriotic funds, the Royal Gardeners' Orphan Fund has not only been able to hold its own, but also to increase the amount of the year's aggregate allowances made to the orphans. The revenue derived from subscriptions and donations, though showing an increase on the previous year, reveal a sensible decrease in the amount collected by local secretaries, a circumstance which the committee can only regard with some anxiety, though they have reason to believe that the falling off in this source of income is only temporary.

The number of children who have been elected to the benefits of the fund during the past eleven years is 113, and the total amount which the committee has been enabled to distribute among the destitute orphans during that period is £7,711 3s. 6d. The number of children now on the fund is seventy-two, exclusive of those to be elected this day.

The committee desire to acknowledge the services rendered to the Fund by Alderman Sir Reginald Hanson, Bart., M.P., who so kindly presided at the Annual Festival, and whose expressed appreciation of the work carried on by your committee, and his most forcible appeal for support on its behalf resulted in a subscription list amounting to £262 12s., a result which was the more gratifying in that the Festival had, for unavoidable reasons, to be held at a later period of the year than usual. The committee have much pleasure in recommending that Sir Reginald Hanson be this day elected a vice-president of the Fund.

Lord Battersea has kindly consented to preside at the next festival, which has been fixed to take place on Tuesday, May 8, at the Café Monico, 46, Regent Street, W.

The committee sincerely deplore the loss which the Fund has sustained by the death of Mr. Sydney Courtauld, one of the trustees, whose kindly support in its earlier days remains with the committee a cherished memory. Mr. William Sherwood, the eldest son of the treasurer, has expressed his willingness to undertake the duties and responsibilities of the office of trustee, and the committee ask subscribers to confirm their choice.

By the recent death of Mr. Alfred Outram, the Fund has lost the services of another devoted worker, and the committee a colleague whose genial presence and whole-hearted sympathy with the objects of the fund will be greatly missed. The seat vacated by Mr. Outram's death has been filled by the election of Mr. Peter E. Kay, Chislmarn, Church End, Finchley. The resignation of Mr. J. Cheal has also been received, and the vacancy filled by the election of Mr. W. R. Alderson, Bell Farm, Hersharn Road, Walton-on-Thames.

The members of the committee who retire by rotation are Messrs. W. Bates, R. Dean, H. Herbert, H. J. Jones, W. Marshall, H. B. May, G. Reynolds, and A. W. G. Weeks; and Messrs. Bates, Dean, Jones, May, Reynolds, and Weeks, being eligible, offer themselves for re-election. Mr. Whitpainé Nutting, 106, Southwark Street, S.E., and Mr. E. G. Monro, Covent Garden, W.C., are nominated by the committee for the vacant seats.

The retirement of Mr. Marshall and Mr. Herbert are incidents in the history of the Fund which your committee cannot but deeply regret, and their colleagues desire to place on record their high sense and appreciation of the valuable moral and material support which these gentlemen have so ungrudgingly rendered to the Fund. Mr. Herbert, one of the founders of the Fund, was one of the most constant attendants at the meetings of the committee until struck down

with illness, from which he has unhappily not yet recovered; and the committee ask the subscribers to signify their appreciation of his good and faithful service by according him their special thanks. Mr. Marshall's services to the Fund as Chairman since the lamented death of Mr. George Deal in 1890, have been invaluable, and as a slight recognition of the uniformly courteous and efficient manner in which he has so long and so faithfully discharged the duties of his office, the committee have the pleasure this day of nominating him for election as a Vice-President.

It is not necessary to print the full statement of accounts here, but we may say that the total income for the past year was £2,203 9s. 3d. The total investments amount to nearly £10,000. On the expenditure side, the allowances to orphans during the year amounted to £946 15s., and grants in aid accounted for another £18 17s. 6d. The balance in hand, at bank and on deposit, is £286 4s. 5d.

PROCEEDINGS.

After the adoption of the Report had been moved by the Chairman, a letter was read by the Secretary from the Bournemouth District Gardeners Mutual Improvement Society, expressing an opinion against permitting more than one child in a family to be given the benefits of the Fund at one time, "unless under special circumstances."

Mr. R. DEAN proposed to refer the letter to the Executive Committee. That committee only recommended such children for election in cases where there were "special circumstances." After some remarks by Mr. A. DEAN, a very satisfactory explanation of the question was made by Mr. W. ROUSELL. The Fund, said he, is at present able to extend benefit to more than one member of a family, where necessity demanded such a course, and possibly the committee would have to consider whether or not they should not continue assistance to some children after they have attained the age of fourteen years. The committee did not propose to follow the example of the Patriotic Commissioners, and save a great amount of money for future use, at the same time administer to present needs in a niggardly fashion. He believed it good policy to make the best use of the money possible; to help the orphans liberally, and to the extent they are able, the public would then respond to such a policy by providing the amount of means necessary.

The Report and cash statement was accepted with acclamation. Alderman Sir REGINALD HANSON and Mr. W. MARSHALL, were then elected Vice-Presidents. Mr. W. SHERWOOD was elected a Trustee. The Treasurer, Mr. N. N. SHERWOOD, and the Auditors were thanked for their services, and Mr. MARTIN HOWAN was re-elected to act in the latter capacity with Mr. P. RUDOLPH BARR.

Following a vote of thanks to the committee, Messrs. E. G. MONRO (son of Mr. Geo. Monro), and Whitpaine Nutting were elected members of that body, and retiring members were re-elected as recommended in the above report.

A resolution was passed regretting the circumstances that have led to the retirement of Mr. H. HERRST from the committee, and expressing appreciation of the good work he has done.

A vote of thanks to the Secretary, Mr. WYNNE, was passed unanimously on the proposition of the Chairman, seconded by Mr. ASBEE, and supported by Mr. W. BATES, and Mr. MILES, a deputation from the Southampton Auxiliary.

ELECTION OF ORPHANS.

The Committee of Scrutineers reported that the following nine children were duly elected to the benefits of the Fund.

HILDA KATHLEEN MARY ROGERS	504 Votes.
AARON HALL	470 "
WINIFRED MOXHAM	429 "
CHAS. ARTHUR DRANFIELD	427 "
JOHN BAIRD	254 "
EDWARD WHITE	237 "
GEO. WILLIAM STEVENS	153 "
MARGARET MAY WOOD	148 "
SARAH LOUISA EMILY LANGLEY	135 "

When the business of the meeting had proceeded thus far, the Chairman made the satisfactory announcement that the committee recommended that the two unsuccessful candidates—Arthur Gregory Stevenson and Ernest Stanley Henderson, together with three other candidates—whose claims had been placed before the committee since the list voted upon had been drawn up, be also placed upon the benefits of the fund with out election.

The Chairman, and Messrs. R. DEAN and W. POUPART, all declared their belief that the financial position of the fund warranted this course of action, and the proposal was agreed to with much satisfaction. The committee have therefore provided for all claimants up to the present time. The names of the three late candidates are Mary Alice Wood, Frederick George King, and Joseph George Riddell.

In the evening was held at Carr's Restaurant, Strand, the annual friendly dinner of the committee and friends; Mr. GEO. MONRO presided, supported on the right by Mr. N. N. SHERWOOD (Treasurer), and on the left by Mr. ASBEE. There was a general feeling of satisfaction at the condition of the Fund, and a determination not to abate in the least the endeavours that have been made in the past.

CHESTER PAXTON.

At a meeting held in the Lecture Theatre of the Grosvenor Museum on Saturday, Mr. Robert Newstead, F.E.S., delivered a lecture to the members on "Recent Important Investigations of the Currant-bud Mite," followed by "Notes on the Pear-tree Slug." Dealing with the Currant-bud Mite, Mr. Newstead gave some very interesting particulars of a series of experiments he had recently conducted on the Duke of Bedford's fruit farm at Woburn, with a view to the extermination of this pest so much dreaded by growers of bush fruit.

After having unsuccessfully tried many so called practical remedies, Mr. Newstead said he had come to the conclusion that the best and most expeditious method of getting rid of the mite was to cut off all the infected branches and burn them. He then gave in detail the result of his inquiries into the life-history of the Pear-slug and the best means of dressing the trees infested by this destructive insect.

An animated discussion followed, in which Mr. Robert Wakefield, President of the Society, and others took part; and Mr. N. F. BARNES in proposing a vote of thanks to the lecturer mentioned the fact that the Royal Horticultural Society had recently recognised Mr. Newstead's ability as practical entomologist by inviting him to lecture at one of their London meetings.

SHROPSHIRE HORTICULTURAL.

THE annual meeting of the members of the Shropshire Horticultural Society was held yesterday afternoon. The Mayor, Mr. R. S. HUGHES, congratulated the members on the extraordinary success which attended the society's last show, and on the fact that the receipts for the past year exceeded any previous record by considerably over £200.

Mr. H. W. NAUNTON (one of the Hon. Secs.), presented the annual report of the committee, from which the following are extracts: "It appears to be the general opinion that the horticultural display in the Quarry, on the 24th August last, was the finest and best ever seen there, and it is satisfactory to report that the attendance was the largest on record, and that the receipts on that day and the profits on the year exceeded all previous returns. The collections of Grapes which included exhibits from many of the best known Vine-growers in the kingdom, were undoubtedly a success, and the results should encourage the society to continue their experiment of introducing novelties in future exhibitions. It is proposed this year to offer large prizes for collections of British grown fruit, which will probably attract a large number of competitors, and which, in consequence of the great variety in form and colour of the exhibits, will no doubt meet with general appreciation."

The Assistant Treasurer presented the statement of accounts, and pointed out that the total receipts for 1899 amounted to £4,739 10s. 11d. The profit on the summer show amounted to £1,050 13s. 5d. The balance in the bankers' hands on December 31, 1898, amounted to £1,898 15s. 3d., and on December 31, 1899, to £2,149 9s. 10d. The actual receipts on two days of the summer show (excluding subscriptions), amounted to £4,154 8s. 2d., and the actual payments on account of the summer show alone to £3,648 13s. 7d. The money taken at the gates on the first day was £379 14s. 9d., and on the second day £1,852 19s. 6d. The society's total receipts for twenty-five years amounted to £65,197 10s. 8d. The donations and gifts made by the society amounted to £3,840 10s. 6d., and in addition to the balance of £2,149 9s. 10d. in the bank, the society owns land situate between the Quarry and the Friar's Bridge, which was purchased for the town at a cost of £5,501. The amount of prize-money awarded during the year was £1,050 17s. 3d.

BRISTOL AND BATH AUXILIARY OF THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

PRESIDENT, J. H. LOCKLEY, Esq.; Mr. G. HARRIS, Hon. Sec. and Treasurer of this branch of the Gardeners' Royal Benevolent Institution. The Seventh Annual General Meeting was held at Chivers' Restaurant, 6, Royal Promenade, Queen's Road, Clifton, on Wednesday, February 21, for the following purposes, viz.: to receive and consider the annual statement of accounts and the report of the committee; to elect a committee of management, and secretary and treasurer for the ensuing year.

The annual report then presented makes mention of the following:—

By the opening of the gardens at Ashton Court and Sneyd Park for the benefit of the Society, the funds were enriched by a sum of £13 11s. 3d.; and Sir Greville Smythe, Bart., and F. Tagart, Esq., were duly thanked for their kindness.

The successful candidates at the election were Messrs. H. O. SMITH, Jay, Turner (Bath Auxiliary), Messrs. LANDSOWNE, Townsend, Wilkinson, Shaddick, and Drewett (Bristol).

It is very gratifying to our Auxiliary to record the election of Messrs. EVANS and W. THOMAS, two of their members, to be pensioners of the parent society.

It is hoped their success will encourage the gardeners in the neighbourhood who have not yet joined the Society to become members.

The Bath Branch of the Auxiliary held a Smoking Concert in connection with the Chrysanthemum Show in their city on November 8, for the purpose of making known the work of the institution amongst local gardeners. Mr. Ingram attended, and gave an instructive address, the result being that several new members were enrolled.

MISCELLANEOUS SOCIETIES.

Cardiff Gardeners.—On Tuesday, February 6, Mr. T. MALPAS gave a lecture on "The Begonia, and its Usefulness for Decorative and Bedding Purposes." The reading of the paper was followed by a long debate, and measures were discussed for the prevention of "rust" and yellow thrip.

Wargrave and District Gardeners.—On Wednesday evening, February 7, the members of this Association met to hear a lecture by Mr. L. TREACHER, F.G.S., of Twyford, on Bowsey Hill, a huge mass of clay, and the highest point in the district. The lecture was illustrated with lantern-slides of geological maps, sections, and photos of various places in the neighbourhood, which were carefully explained. The fossils found in the Reading and Woolwich beds were illustrated, as were also the imaginary restorations of different animals, whose remains had been discovered in these strata. In summing up the chief points of his lecture, Mr. Treacher observed that Bowsey Hill is now only a fragment of what it was in bygone times. The clay of the district was well suited to brick-making, as was evidenced by the numerous brick-fields in the vicinity. A great break in the history of the earth was shown by the strata of the neighbourhood. The exhibits included plants of Cyclamen, Narcissus, Primula, and dishes of Apples, by Messrs. POPE, Greenaway, Fullbrook, and Robbins, respectively.

Bristol and District Gardeners.—The forthrightly meeting of this society was held at St. John's Parish Room, Redland, on February 8, Mr. W. E. GROVES presiding, over a good attendance. Mr. ROGERS, of Staple Hill, supplied a paper on "The Cultivation of Tuberous-rooted Begonias." Mr. ROGERS strongly urged the use of Begonias for bedding, and gave much valuable information regarding their cultivation for this purpose. A discussion followed; and Mr. ROGERS was accorded a hearty vote of thanks for his address.

THE WEATHER IN WEST HERTS.

THE recent cold period, which was one of exceptional severity, may be said to have lasted from January 27 until the 16th inst.—or for three weeks. During that period there did not occur a single unseasonably warm day, and only two moderately warm nights; and on five nights a thermometer, exposed on the surface of the snow, registered from 23° to 28° of frost. The reading last mentioned is the lowest recorded here at any time since February 17, 1895, or for five years.

The frost penetrated uncropped ground, similar to that in the kitchen-garden, to the depth of a foot; but under grass the soil was not frozen deeper than about 9 inches. For nearly a fortnight the temperature of the soil at 1 foot deep varied only about 2°, but no sooner was the frost completely out of the ground than there occurred a rise of 5° in a couple of days—a considerable variation in so short a time for a winter month.

The ground was completely covered with snow for exactly a fortnight, and at one time lay to the average depth of a foot. Had none of the snow melted, I calculate that the aggregate depth on the ground of the different falls would have amounted to twenty inches. Already four inches of rain (including melted snow), has fallen this month, or more than double the average quantity for the whole of February.

The protection afforded low-growing vegetation by snow is shown by the fact that a minimum thermometer placed beneath the snow covering read on the seven coldest nights from sixteen to twenty-two degrees higher than a similar thermometer resting on its upper surface. During the fortnight that these thermometers were so placed, the one under the snow at no time indicated more than eight degrees of frost.

A double Snowdrop growing in my garden came first into blossom on the 18th inst., or ten days later than its average date for the previous thirteen years, and later than in any year since 1895. E. M., Berkhamsted, February 20.

VARIORUM.

A GREAT SUGAR PRODUCING COUNTRY.—The average yield of sugar to the acre of cane is greater in the Hawaiian Islands than in any other cane-growing country in the world, and its position in this respect demands our attention. The average yield of Maui, for instance, is about 3½ tons of sugar to the acre; Hawaii's average is lowered by the smaller producing qualities of her leeward or dry side, but would not go lower than 4 tons; Kauai, from 4 to 5 tons; and Oahu, 6 to 7 tons. There are, of course, pieces of ground, even entire plantations, on each of these islands, where the yield would greatly exceed the average of

the island; one plantation of Oahu, for instance, yields 10 tons of sugar to the acre (it takes 7 to 8 tons of cane to produce a ton of sugar), and special yields of even 16 tons per acre have been obtained from given sections of the same Oahu plantation. The quality of these figures is the better appreciated by comparison with the yield of Louisiana. The average yield of Louisiana—according to the figures of Professor W. C. Stubbs, Director of the State Experiment Station, varies from 1 ton to 2½ tons of sugar per acre, the average being perhaps not over 1½ ton. *American Gardening*.

TREES STRUCK BY LIGHTNING.—Under this title, Mr. Howard B. Little, in *Knowledge* for January, discusses some remarkable cases of trees shattered by the dread stroke, for particulars of which the original article should be consulted, but we may quote here a single passage: "P. de Jersey Grut gave particulars of a case which is perhaps more interesting than any yet cited. In this instance the tree struck was encircled by a rope some 25 feet from the ground, and it so chanced that an end of the rope stood out from the bark of the tree, so that during the earlier part of a rain-storm the tree was damp from the top to the rope, while the lower portion of the trunk was kept comparatively dry. The tree in this condition was struck, the lower part only being damaged. And the damage followed, downwards, a path which the twist in the fibre of the wood made easiest."

Obituary.

PETER WALKER FAIRGRIEVE.—This well known Scottish gardener died suddenly at Dunkeld House on Thursday, 15th inst. He had for a quarter of a century acted in the capacity of head-gardener to the late Dowager Duchess of Athol, and for some years to the present Duke. The intelligence of his death will be received by his many friends and acquaintances with deep regret. He was an enthusiast in all matters associated with horticulture, and was more especially interested in hardy fruits, lecturing on their cultivation, and exhibiting them at Scotch shows. Mr. Fairgrieve had considerable scope at Dunkeld Gardens, and good opportunities for testing the value of varieties of hardy fruits for the northern parts of the country; and he took full advantage of the means at his command. The great gathering of horticulturists from all parts of the country at Dunkeld Gardens some years ago, at the invitation of Mr. Fairgrieve, to inspect and discuss the merits of the fruits grown in that well-appointed garden, will long be remembered as being a meeting of great usefulness. The meeting ended with a banquet at Dunkeld, to which all the visitors were invited, and discussions on fruit and fruit-culture generally in Scotland was entered into with great zest. The Duchess supported her gardener in his efforts to render the conference a complete success. The deceased was a native of Galloway; had a good training as apprentice-journeyman, and went to Wemyss Castle, Fifeshire, as foreman; from thence to Dunkeld in the same capacity; from where he went as head-gardener to Duncrub, near Perth; and a few years later returned as head-gardener to Dunkeld. He was in his 58th year. *M. Temple, Carron*.

TRADE NOTE.

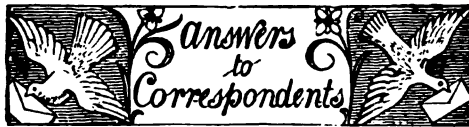
MR. F. C. EDWARDS, who, for the past fourteen years has represented the firm of Messrs. William Clibran & Sons, Oldfield Nurseries, Altrincham, has commenced business as a seedsman, florist, &c., in Leeds.

PLANT PORTRAITS.

BERBERIS THUNBERGI (D.C.). *Mitteilungen der Deutschen Dendrologischen Gesellschaft*, 1899.

EUTAXIA MYRTIFOLIA (R.Br.). *Revue de l'Horticulture*, Belge, January.

PEAR MADAME GILLEKENS.—A seedling raised by M. Neils, and distributed by M. Gillekens. Season, November to the end of December. *Bulletin d'Arboriculture*, &c., January.



AZALEA INDICA: *W. W.* The proper time for re-potting in the spring is just when new root-growth is beginning, which is easily ascertained by turning out a few of the plants. Root-growth is always slightly in advance of top-growth. Summer re-potting should take place after the flower-buds are set, the after treatment of the plants being such that no growth of shoots is brought about. Late in August is a suitable time for plants which have not been forced, as then a gradual fall of the outside temperature is taking place, but the warmth is still sufficiently high to encourage the formation of roots in the new soil. No large shifts should be afforded at that season. Forced Azaleas may be spring-potted, and the growths once or twice pinched before allowing them to set flower-buds; and plants thus treated must be kept under glass, and well syringed daily till the last growth made is getting in a half-matured state, when they may be placed in a fairly sunny spot out of doors. When the flower-buds are set, all plants needed for late spring blooming may be placed in positions out of the reach of the sun.

CALCEOLARIA DISFIGURED: *Ed. C., Ealing.* The plant sent has the appearance of having been very heavily fumigated with Tobacco, or some form of it, or dipped in a very strong insecticide. The tender heart leaves are dead, and the edges of the other leaves badly injured. There was no fungus other than such as is commonly found on decaying vegetation.

CARNATION: *W. M.* We cannot undertake to name florists' flowers. Take them to some large grower of these flowers.

CORRECTION: p. 108, "Influence of the Stock upon the Graft, &c.": for *Demster* read *Kemster*.

CINERARIA: *J. F.* It is an instance of fasciation, or union of several stems into a ribbon-like mass, and may be the result of over-feeding the plants with stimulating manures.

FUNGUS: *H. D. W.* The young state of the dry-rot fungus.

HARDY SPECIES OF ORCHIDS: *R. P. S.* We will comply with your request in an early issue.

MEDICINAL PROPERTIES OF THE APPLE: *J. H. D.* None of the fruits you mention have any special medicinal properties; but all are wholesome. The Banana is the most nutritious, as it contains starchy material. For the answer to your second question, we advise you to apply to the Secretary of the Pharmaceutical Society, Bloomsbury Square.

MOTOK MOWERS: *Balmforth.* The inventor is Mr. W. J. Stevenson Peach, Askew Hill, Burton-on-Trent. See figs. 57 and 58, in *Gardeners' Chronicle*, March 28, 1896.

NAMES OF FRUITS: *Bath.* You have exceeded the number allowed by our rules. 2, Rosemary Russet; 3, Red Ingestre; 4, Striped Beefing; 5, Nelson Codlin; 6, We believe this to be a valuable Apple, nearly lost sight of, i.e., Ord's Apple; 7, Golden Harvey.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*C. E.* Senecio Ghiesbreghtii.—*W. W. T.* 1, Cypripedium × Lathamianum, of the best type; 2, Cymbidium Tracyanum, of unusually dark colour.—*Lælia a. var. alba.* Any of the white forms of *Lælia anceps* have the name *alba* sometimes applied to them, though the true *L. a. alba* is very distinct, and has not the purple lines inside the side lobes of the lip seen in other forms. Yours is *Lælia anceps Stella*.—*J. L., Belfast.* Your flower seems to be Cypripedium × Murillo (Argus × Boxalli). There are many varieties of it, in consequence of the variation in the species employed in getting the different batches of it raised.—*E. M. C.* 1, Oncidium Odontoglossum, sometimes called *O. olivaceum*; 2, Odontoglossum crispum, an ordinary form. Probably the yellowish tint will not be constant.—*A. P. S.* 1, Cheilanthes elegans, so far as we can judge by the scrap sent; 2, Zebрина viridis; 3, Zebрина pendula. Both these are generally called Tradescantia in gardens.—*G. F.*,

1, an Evergreen Oak, perhaps the Fulham; 2, 4, 6, forms of the Douglas Fir, Pseudo-tsuga Douglasii; 3, Picea ajanensis; 5, not recognised. Many thanks for the photographs, they will be useful.

ORCHID LEAVES DISFIGURED: *H. C.* The Orchid leaves are affected by what is known as "disease." The mischief is probably set up by some serious defect in the heating or ventilation of the house in which they were kept.

SPARROWS: *W. P.* Our Parliamentary representatives have seen fit in their wisdom to make a "close time" for these unmitigated pests. Place black thread, tightly pulled, in interlacing lines over your Crocuses, Sweet Peas, &c., or these birds will ruin them.

STEPHANOTIS: *A. H.* It is not an unprecedented occurrence to see a ripe pod. The reason why we do not see it often is probably due to the absence of the right insect to ensure pollination.

THE TREE-PÆONY: *Tientsin.* The best answer we can supply is to copy what is said in the *History of European Botanical Discoveries in China*, by E. Breitschneider, M.D., p. 425:—"The province of Shen-Si, and especially the northern part of it, seems to be the native country of the Moutan tree Pæony. The Shen Si t'ung chi, or Chinese description of that province, published about 200 years ago, reports that in the district of Han ch'eng, situated on the western bank of the Yellow River, between 35° and 36° N. lat., there is, 60 li N.W. of the district city, a hill called Moutan shan, where the Moutan tree grows in great profusion, in a wild state. In spring, when these trees are in blossom, the whole hill appears tinged with red, and the air round about for a distance of ten li is filled with fragrance. The people in this district, as well as in the prefecture of Yen Chou (which lies farther north), use the tree for fuel. No European botanist has ever visited these regions. Mr. Hemslay states that in the Kew Herbarium there are only cultivated specimens of Pæonia Moutan. It has been observed in a wild state in the mountains of Japan." (*Miquel Prol. Jap.*, 197).

VALLOTA PURPUREA: *Hortus.* In the *Gardeners' Chronicle*, January 20, p. 33, in an article on "The Flora of Cape Colony," we mention this habit of Vallota purpurea collapsing occasionally under cultivation. The chief reason is over-potting, and re-potting too frequently. Clean your bulbs, and pot them into the smallest pots you can get them in.

WITHERING OF THE LIP OF DENDROBIUM: *J. R.* The withering of the labellum on some of the flowers of Dendrobium may result from a check by sudden fall in the temperature of the house or some other cause setting up interference with the supply of nourishment. Sometimes when the flowers have been handled, and the labellum broken at the base, the same result occurs.

COMMUNICATIONS RECEIVED.—*O. H.*—*W. H. M.*—*J. Minty*—*F. Sheeren*—*A. P.*—*W. H. W.*—*J. R.*—*Helenoveld*—*H. W. W.*—*A. D.*—*E. H. J.*—*B. W.*—*E. M.*—*D. T. F.*—*H. H.*—*T. A.*—*W. J. S.*—*A. W.*—*Perth*—*W. M.*—*M. Stecherbina*, Simpheropol, Russia—*H. B. M.*, Consul Tientsin, China—*H. W.*—*B. D. J.*—*H. P.*—*H. F.*—*H. C.*—*A. M.*—*W. G. J.*—*X. I. R.*—*W. H. M.*, Boston—*W. T.*, St. Louis, U.S.A.—*E. M. Luxarches*—*W. R. F.*—*J. H. G.*

PHOTOGRAPHS, ETC., RECEIVED WITH THANKS.—*Luton*, A. J. A. & Co.

DIED.—On the 16th inst., after a lingering and painful illness of two years' duration, **HARRY CHEVERTON**, third son of Mr. Harman Payne, in his ninth year.

—On February 9, 1900, at Great Bookham, Surrey, **JOHN OLIVER GOLDSMITH**, for thirty-six years gardener to Sir W. R. Farquhar, Bart., of Polesden Lacey, Dorking.

Continued Increase in the Circulation of the
"GARDENERS' CHRONICLE."

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

TREBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, and ALL CLASSES OF GARDENERS' AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.

(For Markets and Weather, see p. xiv.)



THE Gardeners' Chronicle

No. 688.—SATURDAY, MARCH 3, 1900.

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THE REV. JOHN LAURENCE, A.M.

THIS gentleman occupies a somewhat unique position in the annals of gardening as an authority on fruit-culture, having been the successor of De la Quintinie and of John Evelyn, and fairly superseding both by the comparative soundness of his instructions. He himself was followed at very short intervals by a number of writers, chief among whom was Stephen Schwitzer, whose book on fruit-culture attained great popularity, and which to some extent obscured the merits of the works issued by Mr. Laurence.

Admitted a Fellow of Clare Hall, Cambridge, in 1688, he, as we gather from his earliest work, was appointed rector of Yelvertoft, Northampton, eleven years later, though 1703 has also been named as the year of his appointment. Immediately after entering on his charge he commenced his labours and experiments in connection with fruit-culture, and from here emanated in 1713 *The Clergyman's Recreation*, the first of three little manuals, and the one by which he is best known as a writer on horticulture. This book was written with the praiseworthy intention of creating an interest in gardening among his "brethren," and

at the same time to give them the benefit of his experience, which, gained in a small garden, was nevertheless characterised by much originality. It proved a great success, five editions having been called for in four years; and I have also found it bound up as part of a work treating on a variety of subjects connected with rural economy. Induced by its success, Mr. Laurence, in 1716, proceeded in another treatise to expand his views on fruit-culture, and this he entitled *The Gentleman's Recreation*, of which at least two editions appeared. In 1718, in order to render the series complete, *The Fruit Garden Calendar* was published, and to this is appended an "Essay on the Barometer."

The then well known Bernard Lintott, who, it will be remembered, secured a fleeting immortality in one of Dean Swift's witty effusions, was his publisher.

It will be convenient to note here what appears to us now a very remarkable incident in connection with *The Clergyman's Recreation*. The author, shortly after its appearance, suffered attack from two sections of his readers—a strange return, though not unexpected, as he endeavoured in the preface of that work to meet the very charges that were brought against him. Professional gardeners condemned his teaching, not on account of its unsoundness, but largely because, being a clergyman, it was sagely concluded the writer was thereby incapacitated from giving advice outside the domain of his own profession. No doubt also they winced under the infliction of a slight lashing he bestowed on gardeners as a body for their incompetence, which, however well deserved, was naturally resented. Add to this, that his precepts represented the result of his experience, and that his book was the first that had appeared for at least a century that was not composed of translations from French authors, or mere compilations, and good reason, though no palliation, for the behaviour of gardeners will be apparent.

But it was as a minister of religion that charges of the most grievous nature were made against him. He was said to have prostituted through his book the office he held, and also of having wasted time in his garden that ought to have been devoted to the work of his parish. These and other charges he had foreseen, and had shown in the preface above alluded to, to be groundless; but people were not hindered thereby from formulating attacks on this gardening parson, whose simple habits of life were beyond their comprehension. I have seen one of the pamphlets launched against Mr. Laurence at this time, and it affords a glimpse of the curious sectional feeling stirred up by a matter apparently so simple.

The object of these attacks had, however, made up his mind that gardening when pursued by a clergyman, was in no respect worthy of deprecation, let alone condemnation, and he continued in the even tenor of his way undisturbed by these attacks. Nor did he remain content with merely giving instruction to the audiences reached by his book. For, finding the practice of agriculture in a very backward condition in his own parish, and the farmers so self-satisfied as to pay no attention to his well-meant advice, he resorted to the incontrovertible method of demonstrating on his own ground the better way. The then altogether unsatisfactory practice of sowing Beans on the surface of the ground, and then partly covering them with soil by means of rude harrows, was thus superseded by drill culture. For the institution of this and other improvements he did not claim a pure philanthropy, because, as he naively remarked, when the farmers increased their crops his own income was benefited in a corresponding ratio.

The garden, or, in his own words, what "they used to call a garden," at Yelverton, was a piece of ground about 32 yards square, "mounded round with low mud-walls, quite overrun with Couch, Nettles, and Gooseberry-bushes;" the soil, only 6 inches in depth, resting on a wet, white clay. There is some reason to accept this apology of a garden with its mud-walls as fairly representative of many others in the seventeenth century, though there was also a great number of extensive and well-kept places belonging to the nobility and wealthy gentry.

Mr. Laurence's proceedings on acquiring possession of this spot of wet clay were sufficiently characteristic. Against the advice of his neighbours, though not without their assistance, he at once set about clearing away part of the mud obstruction, and in its place built a 9-foot brick-wall, which in October of the same year he planted with a variety of fruit-trees. His reason for commencing with his garden first, and letting the Rectory and other buildings stand over (and it exhibits very strongly his keen gardening instincts), was that fruit-trees could not be planted too soon, inasmuch as they began at once to make progress to yield a return in fruit; whereas matters about a house could be left till a convenient season arrived without anything worse occurring than a temporary inconvenience! In the space of three years the garden was transformed from a wilderness to a fruitful paradise, flowers at this period holding no place in his affections. He, indeed, inveighed against the cultivation of flowers which please only the sense of sight, as appropriating labour and attention that were in his opinion better bestowed on fruit-trees, which, when in bloom, are equally beautiful with flowers, while they also gratify the sense of taste, and are further valuable as a food.

It must have been shortly after getting his garden into proper trim, and fruit began to reward his labours, that he adopted a method of scaring thieves, which shows him to have been at once ingenious and of a very kindly nature. He ordered the village blacksmith to construct a trap "with formidable teeth, which was to be called a Man-Trap." This was left in the smith's shop during several weeks, and that worthy received a hint to dilate on the horrible fate of the unfortunate whose limb should get within its awful grasp. His powers of description, it is gratifying to know, in conjunction with the horror-striking machine, proved sufficient to put a stop to garden-breaking, the trap meanwhile being stored safely away out of sight.

By and by Mr. Laurence was induced to become a florist, because, in his own words, "There was always a considerable Part of the best Season in the Summer left when there was almost nothing to be done by Way of Diversion," and as his health suffered, or he imagined it did, unless he spent part of every day working in his garden, the cultivation of flowers was for the above reason added to that of fruit. Nor does he allow his readers to assume that he merely potted about. He believed that *Labor ipse Voluptas*, and not only grafted and pruned trees, and sowed seeds, but as occasion demanded he was not ashamed to dig, though he takes care to explain "ad Rubrorum, tho' not ad Sudorem."

He also appears to have been in the habit of visiting nurseries and famous gardens, though it is unfortunate he has left so little on record concerning these visits. The following note of what he saw in the garden of Mr. Balle, at Kensington, in 1717, is proof of how valuable such records might have been. Mr. Balle's residence, it may be explained, was Camdden House, and Bradley appears to have directed the experiments with tender plants carried on in the garden at this period. There Mr. Laurence found a small vineyard with the shoots supported "with Prope," and "very fair bunches of the blue Frontiniae tolerably ripe."

It was in this year, 1717, that he published a small work of a religious nature, and four years

later he left Telvertoft on his promotion by Bishop Talbot to Bishopswearmouth, county Durham, where the living, as I have been given to understand, was worth £3,000 yearly, but this I have not been able to verify. Here, the rectory garden, on a hill, was exposed on all quarters, and Mr. Laurence despaired of succeeding with fruits, though he was agreeably surprised to find all kinds of fruits with the one exception of Grapes, grown to much perfection in gardens in his new neighbourhood. He thought the last-named failed because the best method of pruning was unknown; and in order to teach gardeners the practice, he employed some of his spare time giving demonstrations of pruning. The art of gardening was generally, however, in a very backward condition, and it made him "melancholy" to find south walls covered with Apple-trees instead of Peaches. The best gardens in the neighbourhood at this period were Lumley Castle (Earl of Scarborough), Chester, Beamish, Hilton Castle, and Brancepath Castle, where, in the garden, he discovered an Apricot-tree 30 feet in height, with branches extending 44 feet; and on the castle wall three Pears measuring respectively 41 feet high, by 43 feet broad; 33 feet by 30; and 33 feet by 55. None of these could have possibly been young trees, and they afford interesting proof that fruit culture must have been fairly well understood in the north of England at a date long antecedent to that Mr. Laurence would lead us to suppose.

He was but a short time settled at Bishopswearmouth when his combined works were produced bound in one volume, with a portrait of the author affixed as a frontispiece. Meanwhile his pen had not been lying idle, and in 1726 he gave to the public what he no doubt considered his magnum opus, *A New System of Agriculture*, "Being a Complete Body of Husbandry and Gardening." This is a folio extending to nearly 500 pages, and I have seen it in two sizes, the one a little taller than the other, and in diverse bindings, the taller in calf, the other in boards. It is a work that appears to be not much known, its price in all probability militating against its diffusion when published. It is divided into five books, of which the third, fourth, and fifth are more particularly devoted to gardening subjects. A vast amount of curious information concerning prices, values, and customs, is contained within its boards, though it is naturally devoid of the original characteristics displayed in the earlier group of books. It was the intention of Mr. Laurence to compose yet another work, on road-making, but it does not appear that this was ever effected.

He died in 1732, leaving one son, Rector of St. Mary's, Aldermanbury, and three daughters, all of whom were well married to gentlemen resident in County Durham.

In another communication I hope to glance over the teaching contained in the above-named works. *R. P. Brotherston.*

NEW OR NOTEWORTHY PLANTS.

PRIMULA KEWENSIS (P. FLORIBUNDA × P. VERTICILLATA).

ALTHOUGH the genus *Primula* has so far almost entirely resisted attempts at artificial hybridisation, there are recognised hybrids of accidental origin, and of such is the plant about to be described. Its history is as follows:—*P. floribunda* and *P. verticillata* are both grown in quantity at Kew for use in the conservatory (No. 4), and when in flower they are usually placed together. The plants are raised annually from seeds. Two years ago Mr. Garrett, the foreman, noticed among a batch of seedlings of *P. floribunda*, one with distinct foliage; and when it flowered last year, it was seen to be something new. It was carefully grown on again, and has been in flower all the winter. At the present time it is a beautiful picture of green foliage, and elegant spikes of bright yellow flowers. It is quite inter-

mediate in all its characters between *P. floribunda* and *P. verticillata*, as the following description will show:—The entire plant consists of a tuft of leaves and flower-spikes 1 foot high and wide; the leaves are 6 to 8 inches long, and 1½ to 2 inches wide, obovate spatulate, with a long petiole-like base, the margins wavy and dentate, in colour a bright green, showing faint traces of the mealiness characteristic of *P. verticillata*. The sepals are numerous, 12 inches long, slender, erect, glabrous, with from two to four whorls of large leafy bracts 1 to 2 inches long, and surrounding whorls of from six to ten flowers; pedicels very slender, ½ to 1 inch long, glabrous, slightly tinged with brown; calyx campanulate, green, with five regular acute lobes; corolla-tube 1 inch long, faintly mealy, otherwise quite glabrous, limb ¾ inch wide, and formed of five almost round notched lobes coloured bright buttercup-yellow. The hybrid evidently inherits from *P. floribunda* its exceptionally free and continuous flowering nature. Seeds were obtained from the plant last year, but they have not yet germinated.

ORCHID NOTES AND GLEANINGS.

"DICTIONNAIRE ICONOGRAPHIQUE DES ORCHIDÉES."

THIS very useful publication is now published every two months instead of monthly as heretofore. An index to the plates representing each genus has been issued, so that if all the plates referring to a particular genus are collected into their appropriate portfolio with the index referring to them, it becomes easy to consult the work. This is one of the most unostentatious of the works devoted to the illustration of Orchids, and at the same time one of the most serviceable. The plates, though small, are accurate representations, and the text, of course, is thoroughly trustworthy. In the last two numbers which have reached us, the following species and varieties are figured:—

- ANGULOIA CLOWESII, Lindley.
- CATTLEYA ACKLANDIÆ, Lindl.—Brazil.
- CATTLEYA ATLANTA INVERSA, C. Warscewiczii, crossed by pollen of *C. Leopoldi*.
- CATTLEYA ATLANTA VAR. SPLENDENS.—Originating from the same cross as *C. atlanta inversa*.
- CATTLEYA ELLA, a cross from *C. bicolor* by *C. Warscewiczii*, Veitch.
- CATTLEYA GODESIANA × COGNIAUX.—Hybrid from *C. Schilleriana* by *C. Gaskelliana*.
- CATTLEYA LEOPOLDI VAR. PURPUREA.—Cogniaux.
- CATTLEYA REX, O'Brien, *Gardener's Chronicle*, 1890, viii., p. 684. Peru.
- CATTLEYA WENDLANDIANA ×.—From *C. Bowringiana* by *Warscewiczii*.
- COCHLODIA ROSEA, Benth.
- CYPRIPEDIUM A. DE LAIBESSE ×.—A hybrid from *C. Curtisii* by *C. Rothschildianum*.
- CYPRIPEDIUM MAHLERE VAR. DR. CLINGE DOORENBOS ×.—A hybrid from *C. Lawrenceanum* by *C. Rothschildianum*.
- DEIDORHIZA VICTORIA REGINÆ, Loher, in *Gardener's Chronicle*, 1897, I., p. 329; and 1897, II., p. 121, fig. 34. Philippines.
- EPIDENDRUM ATROPURPUREUM VAR. LONGILABRIS, Cogniaux.—New Granada.
- EPIDENDRUM XANTHINUM, Lindl.—Brazil.
- GRAMMATOPHYLLUM RUMPHIANUM.—New Guinea.
- LELIA XANTHINA, Lindl.—Brazil.
- LISSOCHILUS HORNSTALLI, Bateman.—Gaboon.
- MAXILLARIA STRIATA, Rolfe.—Peru.
- MORMODES BUCINATOR, Lindl.—Venezuela.
- MORMODES BUCINATOR VAR. CITRINA.
- MORMODES QUANA, Linden & Rehb f.—Ne × Granada.
- ONCIDIUM KRAMERIANUM, Rehb f.—Ecuador.
- ONCIDIUM REFLEXUM, Lindl.—Mexico.
- STANHOPE WARDI, Loddiges.
- VANDA SANDERIANA, Rehb. f.—Philippines.

PLEUROTHALLIS MACROBLEPHARIS AND P. BARBERIANA.

To the superficial observer these two species of *Pleurothallis* are much alike, and the first-named one was described by Reichenbach in these pages in 1874, and the second in 1881.

By an unpardonable horticultural error, more recently appeared a plant to which the name *Masdevallia culex* was given, and which Reichenbach identified as *Pleurothallis macroblepharis*. All

three are now in flower in Mr. R. I. Measures' garden, Cambridge Lodge, Flodden Road, Camberwell (gr., Mr. E. J. Chapman), where a very remarkable collection of this singular *Pleurothallis* and allied plants is in existence. The plants bear numerous slender flower-spikes, which are furnished with singular-looking, gnat-like flowers, having whitish ground, spotted and marked with purple. There is a slight colour difference which is not sufficient to warrant any but those with a special liking for such things growing more than one of them.

PLEUROTHALLIS ROEZLI.

The genus *Pleurothallis* is generally looked upon as of botanical interest only, although many of its members, when well grown, form handsome specimens. The largest and showiest is *P. Roezli*, which was discovered by Roezl about the year 1874, in Colombia. It is one of the Orchid specialties of M. Otto Froebel of Zurich, who sends examples culled from a quantity of the plant. Some specimens possess many long drooping racemes of rich claret-purple tinted flowers. The plants, about a foot in height, bear light green, leathery leaves, emerging from slender pseudo-bulbs, from which curve over the graceful spikes, which carry from ten to twenty claret-purple flowers, each about an inch in length, and of a fleshy substance. The flowers are produced freely, and last a long time in perfection, making a desirable plant for the cool-house.

CYPRIPEDIUM × FAVARGER.

In the collection of Frank A. Rehder, Esq., The Avenue, Gipsy Hill (gr., Mr. Norris), there has flowered for the first time a showy cross obtained from *Cypridium Charlesworthii* and *C. × concinnum*, which in size and form is one of the best of the *C. Charlesworthii* crosses, though in colour and general appearance, it resembles others of these crosses, among which so far there is a strong family likeness. The distinguishing features in this case come from the use of *C. × concinnum* (purpuratum × villosum) each of which may be traced in the resultant progeny. The broad, flat upper sepal is rose-coloured at the base, and white on the upper half, a series of dark chocolate-purple lines radiating from the base to near the margin. The petals are yellowish, with red-purple tinge and veining. The surface of the lip is shining red-brown.

ROMNEYA COULTERI.

THIS Californian Poppy is a worthy rival of the Tree-Peony, which it resembles in many points. It has been a favourite with plant-lovers for some time, but we hardly expected to find it in the back-garden of a town house. Our illustration (fig. 39, p. 131) however was taken on the premises of Mr. Gregory, the gardener-photographer at Croydon. The plant, though put out only two and a half years from a 6-inch pot, was 6 feet high, and as much or more through when our photograph was taken. The flowers are white, 6 inches across, the filaments purple. It is a native of California.

CHINA.

WINTER-HOUSES.—At the end of October it becomes necessary to put all pots of flowers and shrubs under shelter, and the device resorted to is both simple and effective. A building fronting south, and with a roof sloping from the front to the back, is constructed out of the soil itself, without any addition but water with which to puddle the soil before making the walls. The buildings vary in length, but otherwise are uniform in structure, and generally are either 25 feet or 37½ feet in length, and 16½ feet deep. The walls are made of mud, beaten flat with spades, about 7 feet high in the south end, and 3 feet in the north, and are about 18 inches thick. In the hollow from which the soil has been dug out to a depth of 2 feet, a few wooden supports are planted to carry a light framework of Millet-stalks, which is afterwards covered

with a coating 6 inches thick of mud. This forms the roof. The walls are on three sides only, and the south side is at first not covered in at all; but early in November a very simple framework of Millet-stalks is run up along its front from the soil to the roof, to receive the paper covering which keeps out the cold and lets in the light. The paper is quite strong enough to remain unbroken if there are no inquisitive cats or weasels about, and seems almost better than glass in retaining the heat poured into the house during the day by the sun, which in the winter months shines almost every day, and is, of course, fairly low in the sky. To

with the mud on the roof. The cost of building a house 25 ft. \times 16½ ft., is about £4. No heating of any kind is used, except that of the sun. The building will stand for years, needing little repair, except to the roof and front. The plants will remain in a healthy condition, with leaves green, and flower buds half opened, until spring moves everything into life with a rush.

Of course such a building would not be possible, except under similar conditions to those which exist at Tsientsin, viz., a light soil impregnated with alkali, no rain between September and April, and a bright sky. It is fortunate that the conditions are

CULTURAL MEMORANDA.

LOBELIA SPECIOSA.

SEED of this or other favourite variety for flowering in the summer should be sown forthwith, in preference to taking cuttings, as is the old method. Plants raised of well-selected strains afford excellent materials for bedding. Sow the seed evenly and thinly in well-drained prepared pans, filled with finely-sifted light sandy compost; and if pans are not available, then sow 6-inch pots, half filled with crocks, over which place a small quantity of moss



FIG. 39.—ROMNEYA COULTERI, AS GROWN IN THE GARDEN OF MR. GREGORY, BY WHOM THE PHOTOGRAPH WAS TAKEN. (SEE P. 130.)

keep the heat in and the cold out, curtains of reeds are dropped from the roof along the whole front of the house, reaching to the ground.

Inside the house a ledge, about 1 foot broad at the sides and 18 inches broad at the front and back, runs round the pit, which is of a uniform depth, and carefully levelled. The pots of flowers which need most sun are, of course, placed on the south ledge; and the shrubs, such as Oleanders, are stood in the hollow, near the back or close to the upright supports, leaving a passage-way in the centre of the building.

The only materials used in the construction of these houses are the soil on the spot, Millet-stalks, paper, a few wooden beams and supports, and a small quantity of broken hemp, which is mixed up

so favourable for building these winter houses, as frosts prevail from October to March, and the temperature occasionally falls below 0° Fahrenheit.

GRAPE VINES

are taken down in November from the walls or trellis-work on which they have been trained, and after being somewhat roughly trimmed, are laid in trenches dug 1 to 2 feet deep: earth is then piled on them to the height of 1 foot or 18 inches above the ground, and the surface is covered with puddled clay, and beaten hard with spades until it assumes an almost solid consistency. No further attention is paid to the Vines until the spring, when they are pruned and fastened again to their old supports. *Tsientsin*.

or siftings, filling up and press evenly and firmly. The seeds may be very lightly covered with sand or soil; make the surface smooth, and stand the seed-pots or pans in a house having a temperature of 60°, with a square of glass over them and a sheet of paper. When the seedlings appear, tilt the pans of glass, and after a few days remove it. Let the seedlings be pricked off before the roots get much entangled, as Lobelias, if once checked in growth, take a long time to recover.

LOBELIA CARDINALIS VARIETIES.

The seed of this species takes longer to germinate than that of *L. speciosa*, and it should be sown at about this date—even earlier is advisable. Strong plants, when put out in beds, make a brilliant dis-

play. This variety is comparatively hardy, but when left out usually suffers from damp. In order to obtain large plants that are sure to flower early in the summer, the plants that were lifted in October or November should have the side shoots taken off, together with some roots attached to each, and be dibbled into 60's, or, if great numbers are required, then into boxes and seed-pans, filled with light sandy soil. Place these in warmth of 60°, and as the season advances afford air freely after they are established, finally hardening them off in May, in readiness for planting-out at the end of that month.

PENTSTEMONS.

These plants treated like the shrubby *Calceolarias*, may be raised from seed sown forthwith. Given fair treatment the seedlings flower well the current year, and make excellent subjects for filling large beds in the flower garden. As border plants, they make a good show, and flowers are useful for cutting.

VERBENAS

are not now much grown as was the case years ago, probably owing to the plants being attacked by mildew, &c. Notwithstanding this defect, where much bedding out is called for, the Verbena is a very useful plant. It comes true to colour, and if seeds of separate colours are sown at this date, and the plants get good attention, strong plants are available by the end of the month of May. Verbenas winter well in cold frames, with a little protection afforded from mats, &c., and such stock plants, when placed in mild warmth in February and March, quickly throw out plenty of shoots fit for making cuttings, which readily strike in a bottom heat of 70°, and a top heat of 60°. *H. Markham.*

FLORISTS' FLOWERS.

CHRYSANthemum SPORTS.

NOTWITHSTANDING the rapidity with which new seedlings can be raised and put into commerce, there still seems to be a kind of sentimental regard for sports from popular varieties. Several of these made their appearance last season, but whether they are in any way improvements on the older forms, the cultivator and exhibitor will ultimately decide. For instance, there is a pure yellow sport from M. Chenon de Leché which, considering the many good yellows we have already, is hardly likely to displace any others; the charm of the parent being in its peculiarly soft mingling of colour. Mrs. Tate is a warm terra-cotta sport from Etoile de Lyon, one that for size had no equal in its day. Madame von André is a pale sulphur-yellow sport from Mutual Friend, a big white Japanese of American origin. Eastman Belle looks like a very promising sport, inasmuch as its richness of colour and its earliness are alike useful; its parent is President Borel. Then we have a good yellow sport from Madame L. Remy, called M. L. Remy; this is one of the Mrs. C. Harman Payne family, and one of the purest in tint. Another from the same source is Mr. A. Barrett.

Among decorative varieties the old La Triomphe has given several sports; and O. J. Quintus has produced a white form that seems to be much valued by those who require free-flowering bush plants. *C. H. P.*

CARNATIONS

That are intended to flower in pots will presently have to be repotted. Those not needing repotting will, if the soil be filled with roots, need more water than heretofore; moderation in this matter should be the rule. Free ventilation should be afforded in mild weather, and a small amount always when no actual frost exists. The surface-soil should be kept stirred. These measures will help to keep the plants healthy. If aphides exist on any of the plants, separate the

latter from the rest and apply tobacco-smoke. If but a few plants are infested dip them in soap-suds, to which some tobacco-juice is added.

Now that the varieties of the florists' Carnations have increased in number, and been improved for outdoor growth, fewer plants are now flowered in pots than formerly. In the matter of pots, in which to flower the plants, it may be said that those of 10 inches diameter will accommodate three vigorous plants easily, and a 9-inch pot two plants or three weak ones, while two will be enough for an 8-inch, and in some cases a 7-inch one will give sufficient space for good development. A suitable soil for Carnations consists of two parts rich pasture loam, to which one part of half-decayed horse-dung and leaf-mould is added, together with sufficient sharp pit or sea-sand as will make it porous, less if the turf be light, and *vice versa*. Let the plants be kept under glass, and ventilate freely. When the plants may be stood in the open air I will again allude to the subject of staples, manures, &c.

The Tree-Carnations may now be propagated from slips inserted thickly in sandy soil in 4-inch pots, plunging the same in bottom-heat of 80°, and top-heat of 55°. Failing other means, pots of 8 inches in diameter may be utilised, striking the cuttings so low that a sheet of glass may be placed over the top of the pot, and top-heat afforded in other ways. In any case, the frame, &c., must be relieved of its moisture, or the slips will go down like snow in sunshine before the *comnus fungus*, the cause of "damping off," and with this intent day and night ventilation is very necessary in order to obtain a good strike. When rooted, pot off singly into thumbs or 60's, using a light compost consisting of leaf-mould and sharp sand. Place the young plants on a shelf close to the roof in a temperature of 50° to 55°, and after a lapse of three weeks inure them to cooler conditions. *E. Molyneux.*

FOREIGN CORRESPONDENCE.

PALMS, THEIR AGE WHEN PLANTING, &c.

I READ lately a short notice in the *Gardeners' Chronicle* accompanying a beautiful figure of a specimen of *Archontophoenix Cunninghamiana* (Wendl. & Drude), growing in a garden in Southern California. Will you allow me in the interest of readers, who like myself once dreamed of making a garden of tall, majestic Palms, to make some observations, based on nearly a dozen years experience.

When the age of a plant is stated, and no express explanation given, it can only be understood as the time which has elapsed since the germination of the seed (as in the case of the two Palm-species named in the notice, neither of which can be multiplied in any other manner than by seed), or in the case of plants raised in other ways, the time which has elapsed since the plant had a separate existence, and the time the branch, slip, layer, sucker, &c. formed part of the mother plant. Now it is a very common thing where planted out in the open, to omit to mention what their age was when planted out. Though I have had my attention naturally very much applied to the question of the growth of Palms in the open ground under different conditions of soil, exposure, and climate, I shall not venture to express any opinion as to the age of the two Palms in question in the notice; but I have no doubt that their age is much above that stated, though they may have grown in the open ground for twelve years only.

I lived for some time in Southern California, but I did not observe a more rapid growth in general of Palms, than in well situated gardens here. I have myself, for about eight years, possessed a garden here, where I try to bring together as many species of Palms as it is possible to cultivate in the open air. Like others, I have found most Palms (there are exceptions, as the *Washingtonia*, Wendl., for instance) to grow very slowly in the first years of their life, and several

Palms (as the genera of *Sabal*, *Nannorhops*, Wendl., and others) are always very slow growers.

The species which, in Southern California, goes under the name of *Cocos plumosa*, and which may or may not be the *C. plumosa*, Martius, is like the other *Cocos* species, known to me (I think that *C. nucifera*, L., makes an exception) as a plant of slow growth when young, even when planted out in the open ground immediately it has developed its two or three first seedling-leaves. I have a number of such seedlings growing in the open ground, but I would advise anyone wishing to make a garden of *Coco Palms*, which are certainly the most beautiful plants which can be grown in the open in this part, to plant specimens as large as they can obtain, otherwise they will have to wait for many years before they can have plants of a highly ornamental character. *A. R. Proschowsky, Grottes St. Hélène, Chemin de Fabron, Nice.*

EARLY FIGS AT GUNNERSBURY HOUSE.

IN order to have Figs ripe in the middle of February, the appliances at the gardener's command must be of the best, and the cultivation must follow suit, it being no easy matter to command success by ordinary methods. To prove that Mr. Hudson understands Fig-culture thoroughly, the visitor has but to inspect the Fig-houses and note the crops of fruit on the pot-trees. I have never observed a fuller crop, even when three months later in the year, than is to be found there at the present time. One great difficulty in growing Figs is the falling of the fruit, but at Gunnersbury it would be difficult, among the great number of trees grown, to find one that is carrying a scanty crop. The cultivation of fruit-trees in pots is a specialty at Gunnersbury, and Figs are largely cultivated for early as well as late supplies. I may remark that Figs are placed very close together in a house with a north aspect, so as to retard growth, which look as if they would afford good crops next autumn, the growth being very hard, and the points of the shoots masses of embryo fruits, now just discernible.

For late autumn-fruiting, Mr. Hudson grows *Negro Largo*, *Nubian*, *Bourjassotte Grise*, and kinds noted for their richness, which are less suited for early work; and though one does not like to chronicle one's failures, I may state that I have forced the above-named Figs with very poor success for early crops—and I note Mr. Hudson does not advise their employment for first crops. I will note the varieties, which are few, viz.—*St. John*, which is largely grown, and rightly so, a very heavy-cropping Fig, in 10 and 12-inch pots, three to four dozen of large fruits being borne on each. This variety is greatly liked for its freedom to fruit early, it retains its fruit well from the start, and needs severe thinning. Many gardeners, including myself, would have feared to leave so heavy a crop; but in this case the roots are in good condition, and the crop is finishing well, with fewer losses this season than previously. Another variety is *Pingo de Mel*, with a fruit not unlike the *St. John* in colour, and an excellent bearer. Plants of this variety at Syon assume a more spreading habit than *St. John's*. I have seen it stated that these two varieties are identical, but I am not of that opinion, and I regret that I did not ask Mr. Hudson's opinion on this point, as, growing such quantities, he has reliable data to go upon. Another early variety is *Violette Sepor*, a richer-flavoured Fig than those previously named, but not so free, although a valuable variety, which forces well. There are other varieties grown, but not so extensively, for late supplies.

In a succession Fig-house there were noted excellent crops of fruit of about half their full size, consisting of early and later varieties, but mostly of the varieties named. The plants are shapely, and of large size, with clear stems, and compact crowns such as is seldom observed. I noted that in the earliest fruiting trees the shoots are not so closely stopped as with later fruiting ones.

At Gunnersbury no secret is made of the method

of cultivation; the trees are repotted annually in the same way as a Peach or Nectarine or other pot fruit-trees. The trees are partially shaken out and repotted early in the autumn. The London smoke-laden fogs so prevalent in the district in winter have not been so prevalent this year, and the trees have not suffered much. It is sometimes asserted that the varieties which I have named for

conditions; indeed, the plant was described as a scandent shrub by Mr. James Britten, the author of the species. The leaves are remarkable in having very large basal auricles, and a curiously reniform blade, the largest being $3\frac{1}{2}$ inches by $2\frac{1}{2}$ inches, dentate, glaucous beneath, dark green above. Flowers bright yellow, in large loose corymbs, each head over an inch in diameter, and composed

B. grandiflora, B. coccinea, &c. Thus separated, the plant under notice would be grouped with *M. uniflora*, which it resembles in all characters except the colour of the flowers, which are bright buttercup-yellow, with a green stripe down the back of each segment. There is also a difference in the length of the scape, which in *B. Sellowiana* does not exceed 3 inches. Numerous examples of this plant have been in flower all the winter in a cool greenhouse at Kew. They were introduced from Montevideo two years ago, along with the pretty little *Crocus-like* Haylockia and other interesting bulbous plants of Uruguay. This is also the habitat of *B. uniflora*. Probably the new-comer will prove as hardy as the last named—at any rate, in the warmer parts of these islands. W. W.

LACHENALIA PENDULA.

A pot of flowering-plants of this handsome species of *Lachenalia* in the Cape-house at Kew reveals a considerable range of variation in the colours of the flowers, and also in the stature of the whole plant. The tallest spike is 17 inches high and $\frac{1}{2}$ in. in diameter, and it bears a dozen flowers, each $1\frac{1}{4}$ in. long, and coloured orange-red, with deep purple and green tips. A second one has a scape a foot high, with flowers of a paler colour, almost yellow, whilst the tips are bright emerald-green, with only traces of purple. Still more remarkable is a third one, which has a scape 9 inches high and flowers 2 inches long, coloured like that first described, with the addition of a rich mottling extending over all parts of the segments. This is a beautiful form, probably the richest in colour of all *Lachenalias*. *L. quadricolor*, another beautiful plant, is also in flower in the same house. Mr. Baker makes this a variety of the well known *L. tricolor*, but it more closely resembles *L. pendula*. W. W.

SCOTLAND.

ABERDEEN NATURAL HISTORY AND ANTIQUARIAN SOCIETY.

THE naturalists had a delightful and instructive meeting in Aberdeen University on Friday evening, February 23. There was a capital attendance, and Dr. James W. H. Trail, Professor of Botany in the University, and President of the Society, occupied the chair. The chief business was a lecture by Professor Thomson, Aberdeen University, on "The Animal Life of the Sea-shore." Dr. Trail, in proposing a vote of thanks to the lecturer, said the object of the society was to work up the natural history of the district, and, as co-operation was the only way in which that could be done, he would be delighted to receive as many recruits as possible, and also any suggestions they may have to offer. The society now numbers over 200 members, and many new names were added on Friday evening.

THE WEATHER IN WEST HERTS.

SINCE the recent frost broke up about ten days ago, the weather has been gradually getting warmer. Indeed, the last five days have been very nearly as unseasonably warm as the five coldest days during the frost were as unseasonably cold. On the warmest night the exposed thermometer never fell lower than 46° —making this the warmest February night for six years. Notwithstanding the sunless character of the last four days, the temperature of the ground during the past week has rapidly risen, so that at the present time it is 2° warmer at 2 feet deep, and as much as 5° warmer at 1 foot deep, than is seasonable. Rain has fallen on each of the last ten days to the aggregate depth of nearly 2 inches.

FEBRUARY.

This was in many respects a very remarkable month. Taken as a whole it was rather a cold February. The most noteworthy feature, however, as regards temperature was the great difference



FIG. 40.—*BRODIAEA SELLOWIANA*: COLOUR OF THE FLOWERS YELLOW.

(From the garden of Mr. Worsley, Mandeville House, Isleworth.)

early forcing are not of good quality, but if the treatment of the plants is what it should be from first to last, there will be no question as to their quality. G. Wythes, Syon House, Brentford.

KEW NOTES.

SENECIO AURICULATISSIMUS.—An interesting and probably also useful garden plant has recently been introduced into Kew from British Central Africa, and is now flowering in the conservatory. It has thin, wiry, freely-branched stems, which look as if they would be more or less scandent under natural

of about a dozen ray-florets surrounding a small disc. The species was collected on Mount Milanji by Whyte. The Kew plants were raised from seeds collected and forwarded by Mr. Mahon, of the British Central African botanical department, who thought they were from *Cineraria Kilimandscharica*, also a native of that region, but quite distinct from the plant under notice. W. W.

BRODIAEA SELLOWIANA (fig. 40).

For garden purposes, this should be called a *Milla* rather than a *Brodiaea*, limiting the latter name to those plants with flowers in umbels, e.g.,

between the weather of the first fortnight and the rest of the month. To give an extreme example, on one night during the cold period above mentioned, the exposed thermometer indicated 23° of frost; whereas on another night towards its close, it never descended lower than 46°—a difference of as much as 42°. Rain or snow fell at frequent intervals to the total depth of over 5 inches, or considerably more than double the February average. About one-third of this large quantity was deposited in the form of snow. The very exceptional character of this fall will perhaps be more readily understood when I explain that it would be equivalent to a watering of 24 gallons on each square yard in my garden. In no previous February during the last forty-five years, has the rainfall at Berkhamsted been as heavy, and only four times before during the same period has such a large quantity been deposited in any winter month. The record of bright sunshine fell short of the February mean by about twenty minutes a day. The winds were variable in direction, and, as a rule, of about average strength.

No sooner did the frost come to an end than the earlier spring flowers began to make their appearance. A selected bush of the wild Hazel first showed a fertile flower on the 22nd, which is five days later than its average date in the previous nine years, and later than in any of those years with the exception of 1895.

THE WINTER.

The past winter, when considered as a whole, was of about average temperature. During the course of it there occurred two distinct periods of cold weather, the first lasting about a fortnight in December, and the other for three weeks in February. The total rainfall amounted to about 10½ inches, which is about 3½ inches in excess of the average for the season. It was a rather sunless winter, but the departures from the mean were in this respect in no way remarkable. *E. M., Berkhamsted, February 27.*

WEEDS.

THE Scotsman of the 18th inst. contains a long article on this subject, in the course of which the writer mentions that *Eichornia crassipes* has taken possession of certain ponds in England. We think the writer should in this case have been particular in verifying his references, or in giving his readers the opportunity of doing so.

In South Africa, we are told, it is remarkable, how small is the influence that plants introduced from Europe exert on the aspects of the vegetation, and how weak is their aggressive power as against that of the indigenous flora. It may be readily supposed that the heat and drought of the climate of South Africa is unfavourable to European plants. The number of introduced plants is few, and chiefly confined to weeds of cultivation, which are never found far from road-sides or human habitations. Those of American origin are more prominent, and, according to the official handbook of the Cape of Good Hope, the prickly Pear is the most abundant. It is a terribly troublesome pest, growing in some places sub-socially and killing out the native vegetation. So tenacious of life is it that a piece of stem of a few square inches dropped upon the surface of the hot dry soil will take root and grow readily. Its eradication is slow and laborious, needing either to be completely buried or burnt.

Mr. Mark King, who has made a study of poisonous and noxious weeds in the neighbourhood of Edinburgh, says that the black Nightshade (*Solanum nigrum*), not a common plant anywhere in Britain (common enough near London, E.), has lately made its appearance on his ground at Bonnington. It was first noticed as a small plant growing among *Mignonette*, raised from seed sent from Germany. It was allowed to ripen and shed its seed, and has since sprung up year by year. The spread of this plant is slow in comparison with many other weeds. The yellow Vetchling, *Lathyrus Aphaca*, made its appearance a few years ago in great profusion in Methven & Sons' nurseries. It was supposed to have been introduced from the south of England among the seed mixed in the soil of the plants sent from that place. But, curiously, the plant never sprang up again. Being an annual, its disappearance was probably owing to the want of sun to ripen the seed. Among others spreading in cultivated ground in the neighbourhood of Edinburgh, he mentions the creeping bell-flower, *Campanula rapunculoides*, and the small Bindweed, *Convolvulus arvensis*, and says that it is only within the last four years that the ground in this district has been infested with these weeds. The small Bindweed is a very troublesome pest, and one of the most difficult to get rid of, as the smallest portion of its creeping root starts to grow on separation from the parent plant. Besides,

however, the damage resulting from their presence by encumbering the soil and infesting the crops, weeds harbour insects and fungi injurious to cultivated plants. Many insects and fungi live on weeds, upon which they thrive and multiply, and thus keep up their number ready to attack their favourite cultivated crop as soon as it is left unprotected. Even in Pine nurseries, where weeds are but little to be feared, there are two which should never be tolerated, the Groundsel, which harbours in its early stages a fungus destructive to young Pines, producing so-called "cankers" as disastrous as those of the larch disease, and the sheep's Sorrel, which is fond of acid-land, and when once it has gained a footing there it grows with extreme rapidity, throwing out in all directions a network of knotty underground stems, which bind the soil, and each of which sends up numerous shoots.

The work of destroying weeds should be systematically undertaken throughout the country. Ballast weeds, roadside weeds, and railway weeds should be watched for and destroyed before they become weeds of the farm or garden. Laws are enforced in the United States to check the production of weeds, and if the practice of destroying weeds in this country were only made general, it would cut off one of the principal avenues for the introduction of insects and fungi injurious to field and garden crops. *A. B. S.*

THE WEEK'S WORK.

FRUITS UNDER GLASS.

By J. ROBERTS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Figs.—Where the young fruit is advancing in size, a rise of temperature to 60° to 65° at night, and 10° higher by day, may now be afforded; and this increase should be accompanied by a greater degree of humidity. The syringe should be freely used on the plants every day in the afternoon, and every part of the foliage and fruit wetted as a means of preventing the lodgment of red-spider. Water should be freely afforded at the roots of trees in pots and borders. The former should be carefully watched for any appearance of stagnation, or sourness in the soil arising from this or other causes. Usually it is the drainage which is at fault, and if this be put right all will go well. Any neglect of this precaution causes the young fruit to turn of a yellow tinge and drop off. The Fig is a gress feeder, and quickly exhausts the nutriment contained in a small potful of soil; this being so, liquid manure should be freely applied to all trees growing in relatively small borders, pots, and tubs. A top-dressing of fibry loam and well rotted dung will be of great assistance to trees in pots which are carrying heavy crops of fruit. To enable this top-dressing to be laid on the surface, strips of zinc long enough to encircle the pot and about 4 inches deep should be placed just within the rim, the added soil, &c., being firmly rammed. A little more care should be exercised in affording water until the roots permeate the fresh soil.

Vines.—If there is any planting to be done, and the borders have been already prepared and the Vines pruned to the requisite height, the sooner the work is carried out the better. A long season of growth is of great advantage, and especially is early planting necessary if the Vines will ultimately be subjected to severe forcing. Old canes, one year old, are best for planting at this season, and it is usual to secure those that are just on the move at the time they are planted. This is not necessary, however, as the Vine, being a deciduous plant, may be planted with perfect safety, and with a better prospect of ultimate success when in a dormant condition. This I have proved many times over. In planting, whether from pots or boxes, all the old and sour soil should be carefully shaken from the roots, which should be spread evenly in all directions, and covered with a few inches of specially prepared compost, consisting of sweet fibrous loam, a little fine charcoal, and coarse sand. Afford sufficient water to settle the new soil about the roots. The young roots will need to be tied securely in their positions. It is wise in all cases to put in supernumerary rods. They afford a double advantage: the first being an earlier return of fruit, and the second that the permanent Vines need not be heavily cropped before they are thoroughly established. The rafters of the house frequently decide the distances at which permanent Vines are planted, whether these be 3 or 4 feet apart. Five feet apart, however, is a good distance to allow, so that there may be obtained a fine spread of foliage and good laterals capable of supporting fine bunches of fruit. After planting, keep the house closed, but use no fire-heat, while a temperature ranging between 45° and

55° can be maintained without it, and afford the rods an occasional spraying with the syringe. It is important to start slowly, so as not to force the rods into leaf before the roots have commenced to extend; but once root-action has fairly commenced, more liberal treatment of the Vines will be beneficial. To those who may have to plant ranges of houses, the following varieties chosen to give a continuous supply of fruit may be useful. For early forcing, Black Hamburg, Foster's Seedling, and Diamant Traube, the latter is the best early white variety we have. It is very free in growth and fruitful, forces well, is of high quality, and fine appearance. It will displace Foster's Seedling and Buckland Sweetwater. For mid-season supply, Madresfield Court, Muscat Hamburg, and Black Hamburg, are the best black varieties; while Muscat of Alexandria is the best white. For late houses, Gros Guillaume, Gros Colmar, and Lady Downe's Seedling are reliable black Grapes; while Muscat of Alexandria, Mrs. Pearson, and Chasselas Napoleon are first-rate whites. The last-named varieties should be freely planted, as it is unsurpassed as a late white Grape.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WISE, Bart., Clare Lawn, East Sheen, S.W.

Aerides.—All species of *Aerides* seem of late years to be less grown than formerly, though at their best they have a singular beauty. After any of the species has remained inactive since the autumn, renewed activity will now be observed at the tips of the roots, which first become green, and then of a pale amber tint. It is at this stage that the exhausted materials, the dead roots, and loose crocks should be removed from the pots and replaced with living sphagnum-moss and clean crocks. *Aerides* can be grown in Teak-wood baskets in pots, and wooden cylinders equally well, and in each case the drainage should occupy three-fourths of the space, and sphagnum-moss the remainder. The long roots may be tied round the baskets, &c., and they will mostly throw out new ones at different points. *Aerides* grown in pots may be reduced in height if they have become unsightly in consequence, removing the basal part of the stem, at the same time breaking the pot if any roots adhere to it, putting the bits of pottery to which roots are attached into a clean pot. A plant growing in a basket or cylinder may remain undisturbed until the bars decay, and a new one becomes necessary. *Aerides* Fieldingi, *A. crassifolium*, *A. crispum*, *A. japonicum*, *A. odoratum*, and *A. Warneri* will thrive in the house with the *Cattleyas*. *A. Vandarum* does best in a cool one, and most of the other species in the East India-house. Until such times as growth is more active, and the evaporation of moisture more rapid, water should be only sparingly afforded, as too much moisture in the materials during the spring is injurious; although a growing atmosphere, with frequent gentle sprayings afforded, and damping down between the plants in favourable weather, do much to promote growth.

Vandas.—Many species of *Vandas* will now stand in need of similar attention to those afforded *Aerides*; *V. Sanderiana* is one of those that should be taken in hand, hanging the plant in the warmest house, and affording it shading in moderation, and as much water as will keep the sphagnum-moss moist. *Vandas* Bensoniae, *Denisoniae*, *insignis*, *lamellata*, *limbata*, *Parishii* and *Roxburghii*, are likewise found to thrive when grown in baskets, and hung up to the roof. *Vandas gigantea*, *lissocilioides*, and *Batemaniana*, being unwieldy plants, are best grown in pots, and stood in a sunny part of the East Indian-house, treating them similarly to the first-named in the matter of water. *Vandas Amesiana* and *Kimballiana* do not grow satisfactorily in some gardens. Here we get a fair return from *V. Amesiana* by growing the plant with the *Phalenopsis* in a part of the house where the heat is least, and a fair amount of sunlight can be afforded it. *V. Kimballiana* is a subject for the intermediate-house, succeeding when it has plenty of ventilation and humidity, and shade in moderation during the summer. It needs very little water at the root during the winter. The last two species should be placed in baskets, and hung up to the roof. Any renovations may be carried out at this season. *Vanda cœrulea* and those of the *V. suavis* and *V. tricolor* sections should be left undisturbed at the root until March.

Shading.—On sunny days, many Orchids whose flowers are of a delicate texture, are readily injured by the sun, such as *Cypripedium superbum*, *C. callosum*, *C. Sandersi*, *C. Lawrenceanum*, *Hycanum*; and the *Bollesia*, *Pescatorea*, *Anectochilus*, and *Phaius tuberosus*, will require to be shaded more or less. Where these plants are few in number, they may be shaded with sheets of tissue-paper, instead of applying shade to the whole of the occupants of a house. Meantime, all blinds should be got in readiness for use.

PLANTS UNDER GLASS.

By T. EDWARDS, Foreman, Royal Plant Gardens, Frogmore.

General Remarks.—The weather having become milder, the temperature of stoves may be 70° at night, and 75° by day, rising with sun-heat to 80° or 85°. The paths and stages should be frequently damped, and recently potted plants may be encouraged to root freely by maintaining a humid atmosphere. No time should be lost in getting blinds fixed for shading; the sun now getting stronger each day. A light spraying overhead by means of the syringe is very refreshing to *Primulas*, *Cyclamens*, &c., in flower, when any signs of flagging are noticed. Repot *Eucharis*, *Hymenocallis*, and *Pancratium*, if necessary; using good turfy-loam and sand, to which may be added a small quantity of bone-meal and dried cow-dung. When established, these plants require an abundance of water, and should be cultivated without check. Pot up cuttings of *Codisums*, &c., as soon as they have rooted; and propagate *Selaginellas*, *Oplismenus* (*Panicum*) *Burmanni*, *Zebrinas* (*Tradescantia*), &c. Where there are permanent edgings of *Selaginella denticulata* and others, the present is a good time for making these good or for renewing them. If it is not necessary to replant, some fine loamy soil and leaf-mould or rotten manure may be given as a top-dressing. *Caladiums* may be divided for the purpose of increasing the stock, and others may be potted-up entire.

The Conservatory, &c.—Admit air freely when the weather is favourable, and as far as possible dispense with fire-heat; remove all dead leaves and flowers from the plants each day. The creepers and climbing-plants should be thinned-out, and the growths to be retained regulated and cleaned. If mealy-bug is found on such plants as *Tacsonias*, sponge the leaves and stems with insecticide, and paint the rafters and any crevices with paraffin.

Violets, &c., in pits.—Remove decayed leaves, afford the plants water, and remove the sashes entirely from the pits during the day. Carnations for winter flowering may now be propagated on bottom heat.

Forcing-house.—Introduce succession batches of *Hydrangeas*, *Callas*, &c. The yellow *Callas* require more heat than the white ones, and a lighter peaty compost, with a liberal amount of pot room.

THE FLOWER GARDEN.

By J. BEEBOW, Gardener to the Earl of Hereford, Abbotsbury Castle, Dorset.

Soils and Leaf-mould.—The present season is, perhaps, the best for the preparation of a variety of soils and leaf-mould. Both are required in quantity in all country gardens for potting, and as dressings for beds and borders. In cutting pasture turf, the country gardener, who is fortunately placed that he can get his turfy soil from the home estate, selects the present month for cutting and carting, because the land is moist, and cutting and stripping therefore easy work. He needs not to be told that rich loamy soil yields the best turf, being full of roots dead and living, excellent in every way for plants. The soil, if it be very good, may be dug 6 inches deep, and that of poorer quality "raced" out 1 foot in width, and raised 2 to 4 inches thick with the turning-iron, the length being anything between 1 foot and 3 feet. A turf stack should have its form marked out with stout pegs, and within these lines the turves should be laid in courses like brickwork, and fresh horse-dung and some soot should be strewn between the courses, not being lavish in the use of the latter. The stack may be built from 4 to 10 feet high, and finished off with a saddle-back that will keep out the rain in great part. It is very essential that no herbage is allowed to grow on a loam-stack, for should weevils exist in the turf, living vegetation would afford these beetles and their larvæ food,

and enable them to live, and become a great nuisance to the gardener.

Leaf-mould.—Tree-leaves contain much of the nutriment demanded by plants, hence its value to the flower gardener. By itself it is, for most species, too porous, but mixed with loam in varying proportions, it greatly aids the growth of many different species. Perhaps the best sort of leaf-mould obtainable in this country is that of the Oak, Beech, Sweet Chestnut, and Hornbeam. The leaves should be collected free from sticks and stones, and placed in a shallow depression of the ground, being hurdled round to keep the mass together. A heap may be built from 5 to 10 feet high, and it should be turned the sides into the middle after decay has set—say, the following autumn. This operation will hasten decay, but there will be no available leaf-mould till well into the second year. By that time the heap will have shrunk considerably, and much of it at the bottom will be decayed wholly or in part, and may be put through a screen or sieve with 1-inch meshes, the refuse being returned to the heap to still further decay. At intervals of six months this sort of screening and sorting must be repeated, till the entire mass is decayed, the useable leaf-mould being stored by itself under cover. By this method of proceeding there will be three different heaps of leaves in as many stages of decay.

Seedlings.—Seeds the sowing of which has been advised in former issues, viz., *Acacias*, *Begonias*, *Melanthus*, *Cannas*, &c., should be pricked off as soon as they can be handled easily. These fragile plants are liable to damping-off if afforded much moisture, or the pots and pans not very well crooked. Let the pans, &c., stand near the glass in the same warm house the plants were raised in, and when once growth is renewed inure them gradually to more fresh air.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener, Stoke Edith Park, Hereford.

Strawberries planted out last autumn will require to be looked over, and if any of the plants have been loosened by the recent frosts, they should be made firm again by treading the soil. The ground between the rows, if sufficiently dry, may afterwards be loosened with a hoe. Runners that were set out in nursery rows last autumn should be planted into their permanent positions. If the positions have not yet been prepared, the work must now be hurried on, and the planting deferred until the soil has settled. These plants will not bear much fruit this season, and the ground between them may be utilised, if desired, for the growth of Lettuces, or some such crops. Old plantations will need manuring, but previous to applying this, clean the plants from dead leaves; and if there are weeds, hoe and rake the ground. Place the manure between the rows, and in spreading it subsequently, work the manure well up around the collars of the plants. A little old potting-soil added to the manure is an advantage, and if it be made firm round the collars, the plants will soon push out an abundance of roots into it. Spent Mushroom and hot-bed dung make capital manures for Strawberries, but if these cannot be obtained, use must be made of artificials. Soot is a good stimulant, and with a little lime added it proves beneficial on some soils. These and any artificial manures should be strewn over the surface, which should then be lightly hoed or forked over. Digging with a spade between rows of Strawberries should not be practised.

Preparation for Grafting.—All trees intended to be regrafted during this spring should be headed back to within a few inches of the points where it is intended to insert the scions. The final cutting back is best done at the time the operation of grafting is performed. Secure the necessary scions at once, and heel them in on the north side of a hedge or wall, if this has not already been done. For the grafting of established trees, wood of two years old should be preferred. Wood made last year will answer well for younger trees, and for thin stocks.

Miscellaneous Kinds of Work.—During inclement weather, when the men are unable to get on the ground, a variety of jobs may be done, namely, shreds cut for future use, old wall-nails sorted, roasted in a shovel over a fire, and whilst hot dipped in linseed oil; and usable old shreds may be boiled in soda and water, in order to kill insects

and their eggs. The old wall shading and blinds may need repairing and new ones making; also wooden pegs of all sorts, including those for holding the blinds and nets away from the surface of the walls.

The Fruit-room.—Most varieties of Pears are now past their best, or over. The variety *Bergamotte d'Esperen* has again proved itself to be the best late Pear here, the fruit having been in use all through the month of January. Apples are keeping well, and many varieties, though past their proper season, still retain their flavour almost unimpaired. The remaining fruits of all kinds should be carefully sorted and inspected weekly, and any that show signs of decay removed. Keep the room cool, and avoid draughts from windows and ventilators—stillness of the air and a rather low temperature being best for Apples late in the season.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain Holwood, Westonbirt, Tetbury, Gloucestershire.

Onions.—The ground for this crop requires to be richly manured yearly, but it is better to change the position of the bed. An open situation upon a fairly dry sub-soil, and where the Celery was grown last season, is one of the best. The trenching, exposure to air, and previous manuring given the soil for the needs of the Celery, would save further work of that sort now. When the ground is dry enough to be easily worked, it should be levelled and made firm by treading. If possible, the sowing should be completed by the middle of March. Sow the seeds thinly, and as evenly as possible in shallow drills about 1 foot apart, and cover them lightly with soil. If the weather be wet, the surface of the bed should be sprinkled occasionally with soot and wood-ashes, to prevent the worms from drawing down the leaves. Where medium-sized, well-ripened bulbs are required, it is perhaps better to adhere to the practice of sowing out of doors, although if seeds be sown in boxes, and the Onion-plant afterwards transplanted, finer bulbs may be obtained. But there is the danger that these would be but half ripened. Among the many excellent varieties are Veitch's Maincrop, Brown Globe, Holborn, James' Long Keeping, and Nuneham Park; while for the larger single bulbs, Ailsa Craig, and Cranston's Excelsior may be recommended.

Parsnips.—Ground that was deeply trenched and liberally manured last autumn, should now be made level for the reception of Parsnip-seeds. Seeds should be sown by the middle of the present month. A good open situation, and a sandy loam, or a rich soil of not too stiff a nature, is required for this crop. Sow thinly in shallow drills, about 18 inches to 2 feet apart, and rake evenly over. The most reliable varieties are Carter's Maltese, Hollow Crown, and Veitch's Improved Hollow Crown.

Cucumbers.—Seeds should be sown now in pots filled with a light rich soil, and if placed in heat, they will produce plants ready for transplanting into heated pits or frames by the beginning of April. As varieties for early fruiting, choose those which have a hardy constitution, and are free bearing, such as Cardiff Castle, Telegraph, and Lion House Improved.

Miscellaneous Seeds.—Sow now in boxes filled with light, friable mould, seeds of Brussels Sprouts, Cabbage, Walcheren Cauliflower, Early Broccoli, Lettuce, and Leeks, and put them in cold frames. A further sowing to produce later plants may be made three weeks hence. Tomato, Capsicum, and white Celery seed may be sown in heat, but remove the Celery when germinated to a cool structure.

General Work.—Cut a supply of sticks suitable for staking Peas and Beans, and in wet weather get these pointed and shortened to the length required. The taller-growing varieties will need freshly-cut sticks, but for those of dwarfier growth, old sticks may be used. If the straw upon the out-of-door Mushroom-beds has become very damp, or decayed, a fresh supply should be afforded; where the Mushrooms are showing, sprinkle lime and soot round the edge of the bed in order to destroy slugs and snails.

PLANT PORTRAITS.

HYACINTH QUEEN OF THE BLUES.—Pale blue, single. A seedling raised by the late Mr. A. v. d. Veldt of Haarlem. *Florilegium Haarlemense*, t. 31.
IXIA. Garden Forms of *Florilegium Haarlemense*, t. 33.
RIEFS SPECIOSUM. *Revue Horticole*, February 16.
TULIPS.—1, *IMPERATOR RUBRORUM*; 2, *COEURONIS DEX* ROSEN. *Florilegium Haarlemense*, t. 32.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

APPOINTMENTS FOR MARCH.

THURSDAY,	MAR. 1—	Linnean Society, Meeting.
THURSDAY,	MAR. 8	{ Manchester and North of England Orchid Society, Meeting.
TUESDAY,	MAR. 13	{ Royal Horticultural Society's Com- mittees, Meeting.
THURSDAY,	MAR. 15—	Linnean Society, Meeting.
WEDNESDAY,	MAR. 21	{ Torquay and District Gardeners' Association, Exhibition.
THURSDAY,	MAR. 22	{ Manchester and North of England Orchid Society, Meeting.
TUESDAY,	MAR. 27	{ Royal Horticultural Society's Com- mittees.

SALES.

- MONDAY, MARCH 5.—Roser, Azaleas, Fruit-trees, Hardy Perennials, &c., at Protheroe & Morris' Rooms.
- TUESDAY, MARCH 6.—Unreserved Sale of the Collections of Orchids formed by H. Tate, Esq., of Allerton Beeches, Liverpool, on the Premises, by Protheroe & Morris. at 12.30 o'clock (two days).
- WEDNESDAY, MARCH 7.—Japanese Lilies, Ornamental and Decorative Palms, Roses, Continental plants, &c., at Protheroe & Morris' Rooms.—Sale of Building Frontages, Nursery Land, and Glass, of Victoria Nursery, Enfield Highway, N., by Mr. H. W. Rendell, 90, Queen Street, Cheapside, E.C.
- FRIDAY, MARCH 9.—Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—41° F.

ACTUAL TEMPERATURES:—

LONDON.—February 28 (6 P.M.): Max. 51°; Min. 39°.
Easterly wind; fine.

PROVINCE.—February 28 (6 P.M.): Max. 44°, W. Ireland;
Min., 37°, N.-E. Scotland.

Should Chiswick
be Abandoned?

THIS is a question which, with other even more serious proposals, deserves the most careful and anxious consideration on the part of horticulturists. It is true that the centenary of the Royal Horticultural Society is still some three or four years off, but if the schemes mentioned at the annual meeting of the Society are to be carried out, there is no time to consider the matter before action is taken, as we are told it will be, even if it be not already commenced. Although primarily it concerns the Fellows of the Royal Horticultural Society, and them only, yet the position obtained by the Society is so important that anything which concerns it finds its reflex in horticulture generally. Thanks to the zeal and energy thrown into the reconstruction of the Society, and the sound policy governing its present management, the Society is once more in a flourishing financial condition, but those conversant with its history know but too well how periods of prosperity have alternated with epochs of financial depression so severe as, on more than one occasion, to bring the Society to the verge of utter ruin. It is with the hope of avoiding any future cataclysm of this description, and with the object of improving and extending the useful work of the Society that we call attention to the proposals of the Society, in the full conviction that the Council will welcome any feasible suggestions from whatever quarter they come.

There is, of course, no question as to the progressive deterioration of the atmosphere near London. That cannot be improved by anything we can do. We are also told that the

soil at Chiswick is exhausted. That, however, is merely an affair of labour and manure. In future, culture under glass must take an even larger share of attention than it now does, and in that way, but by no means entirely, the evil consequences of the fog and smoke may be palliated.

If, however, matters have already reached the stage that Chiswick is to be definitely abandoned, it is useless to discuss matters connected with it.

It has been actually decided to purchase a trial ground at a distance from London, and to vacate Chiswick, in spite of the large expense of removing and re-erecting the houses and of the fact that unless it happens to be particularly easy of access, there will be even fewer visitors than there are now to Chiswick.

As to the trials themselves they obviously require to be carried out on a wider and more scientific basis than they have been hitherto. At present the main work done is to assess the mercantile value of certain plants, and, though not avowedly yet virtually, to allot certificates accordingly. Thus, as at the committees commercial value is the thing primarily thought of. We are far from wishing to underrate the importance of the commercial test, but we think this is only incidentally and indirectly a matter for the consideration of the society. Primarily it concerns the merchants whose trial-grounds, by the way, are on a scale of magnitude and organisation besides which the Chiswick trials look ridiculous. Moreover, the trial-grounds and propagating-houses of our great firms are, notwithstanding their commercial objects, conducted on scientific principles all but completely ignored at the Royal Horticultural Society. And so it happens, that, according to present conditions, if one wishes to see progressive and experimental horticulture carried out with a definite aim and purpose, one must visit some of the trial-grounds and experimental-houses of our great nursery and seed firms; whilst if one wishes to see which plants have obtained a First-class Certificate, now, merely a commercial advertisement, one must go to Chiswick or the Drill Hall—a strange inversion of the proprieties!

The certificates afford a means of recognising merit and interest in a particular plant, or they serve to call attention to superior cultivation. Some people we fear look upon them simply from the commercial side as lures to induce the public to buy. Consciously or unconsciously this may account for the prodigality with which they are awarded.

The relinquishment of the Chiswick garden, and the establishment of a new trial-ground elsewhere, are not the only questions which need consideration. If a proper home for the Society, affording room for the library, offices, meeting-rooms for general horticultural purposes, in fact, a horticultural institute such as we have so long yearned for, is really not attainable, a proposition the truth of which we are not inclined to admit, at least some more fitting place than the Drill Hall might be found for the fortnightly meetings. The nurserymen who avail themselves so largely of the opportunities for exhibiting their productions might be expected to come to the assistance of the Society in this matter.

The establishment of a horticultural college at the new garden is an even more serious proposal, concerning which the Council has kept the Fellows pretty much in the dark. It is rumoured that this is to be done with the active support of certain County Councils. Until we

have definite information, it would be premature to discuss this matter.

The cryptic and inadequate utterances in the annual report, or in the speech of the President, can scarcely be held to bind the Fellows to adopt without further consideration the details of such tremendous proposals. Nothing but a general statement was made at the meeting, and most of the Fellows thought that the negotiations said to be pending had reference to the celebration of the Centenary in four years time, not to any immediate action, and that there would be ample time for the consideration of details.

We allude to these matters for the sake of affording a basis for discussion. Our sole object is to secure ample consideration and free discussion of those proposals for the future, mentioned at the last annual meeting, and to ascertain what is the feeling of the Fellows at large on these most important matters.

It is not too late, even now, to call a general meeting for the purpose of eliciting further information concerning the details of schemes of such magnitude and vital importance.

All will agree in upholding any plan which will conduce to the advantage of the Society, increase its usefulness, and avert the possibility of financial disaster.

All will concur in supporting and aiding the Council and the Executive officers of the Society, who have such substantial claims on the gratitude and on the assistance of horticulturists in general.

COINCIDENT with the Paris Chrysanthemum Show announced for October 23 next, but which it seems may possibly be postponed a few days later, it has been resolved to hold an international conference, and the dates fixed are the 24th and 25th of that month.

As some of our readers are aware, there are three bodies in France that pay special attention to the Chrysanthemum, and it is probable that some little rivalry exists among them. These bodies consist of the Chrysanthemum section of the National Horticultural Society of France in Paris, the French National Chrysanthemum Society in Lyons, and the Northern French Chrysanthemum Society, whose headquarters are at Lille. They have all done good work, their publications are interesting, their members are imbued with an enthusiasm that seems to be only possessed by those flower-growers who take up the Chrysanthemum, and in each case membership is rapidly increasing. Inasmuch as the Universal Exhibition authorities have provided for a series of flower-shows during the running of this World's Fair, it was only natural to suppose that some attempt would be made to show visitors from all parts of the world something of exceptional merit in the way of a Chrysanthemum show. It is pleasing to record that this is practically settled, and that the three Societies operating in districts far apart have agreed to concentrate their efforts for this year, and all meet together in Paris in conference with other growers of Chrysanthemums. *L'union fait la force*, and we may expect something phenomenal from this triune effort.

The organising committee is at once comprehensive and representative. Many of the best names appearing, although from an English point of view we should have liked to see some Southern notabilities on the list, especially from Toulouse, that "*berceau du Chrysanthème*" where Capitaine Bernet, the first man in Europe

to raise seedling Chrysanthemums, lived, in which work he was long followed by men whose names are among the most familiar to English growers.

As at present constituted, the following is the list of the committee:—President, M. Viger; Vice-Presidents: MM. Maxime de la Roche-

presence of ladies, for a Gold Medal to be awarded, &c. Any person, French or stranger, whether a member or not of any of the three societies, can take part in the Conference, and must make application as soon as possible to the President, 84, Rue de Grenelle, Paris. Affiliated or corresponding societies may send

annually a dozen spikes, with some thirty of its handsome flowers; the variety is superb, and as an example of culture the plant is unrivalled. Since the first introduction to Europe of this remarkable plant, no other *Cypripedium* has made such a sensation as this kind. The late Prof. Dr. REICHENBACH declared that this was "one of the most astonishing introductions ever seen." The



FIG. 41.—*CYPRIPEDIUM ROTHSCILDIANUM*, IN THE COLLECTION OF BARONESS ADOLPHE DE ROTHSCILD.

(From a photograph taken by the Baroness.)

terie, Wulveryck, Calvat, Lemaire; General Secretary, M. Abel Chatenay; Secretaries: MM. Bergman, Ph. Rivoire, Cordonnier, Lionnet; Members: MM. Magne, Gab. Debrie, Delavier, Nonin, Oudot, A. Truffaut, Vacherot, L. Duval, Rozain, Boucharlat, Falzer, Dauthenay, Charmet, Combet, Muluard, Jarry, Desloges, Defraigne, and Beethune.

The regulations provide, among other things, for certain questions to be discussed, for the

two delegates, and the printed proceedings will be distributed gratis among the persons who are thus made members of the Conference.

CYPRIPEDIUM ROTHSCILDIANUM.—The specimen here illustrated (fig. 41) is in the collection of the Baroness ADOLPHE DE ROTHSCILD, of Paris, and grown in the Orchid-houses at Boulogne, near Paris. From quite a small plant purchased nine years ago we have before us a noble specimen carrying

specimen measures nearly a yard across, and carries nearly 200 leaves. Years ago we had the pleasure of admiring splendidly-grown, large specimen Orchids at our shows, and it is a loss keenly felt that now there are so few really grandly grown specimen plants; but what can excel such massive examples as here portrayed? *Cypripedium rothschildianum* bears probably the palm among lady slippers, not even *C. caudatum*, *C. Stonei*, *C. Morganiae*, and the almost priceless *C. Stonei* platytanum can compare with it. The culture of

Orchids is now better understood than ever. There are grown to-day more Orchids than have ever been in cultivation, but shall we ever see again the grand specimens of older times? Nothing should stimulate the energy and intelligence of the cultivator as growing a plant into a specimen, and up to its very maximum of development. Twenty magnificently-grown specimen Orchids give more real pleasure to a lover of plants than houses full of ordinary plants, such as may be seen anywhere. Our illustration has been taken from a photograph by the Baroness ADOLPHE DE ROTHSCHILD, whose photographic work is so well known. It is one of the most successful plant portraits we have seen.

LINNEAN SOCIETY.—February 15, 1900, Mr. C. B. CLARKE, F.R.S., Vice-President, in the chair. Mr. R. MORTON MIDDLETON, F.L.S., exhibited a series of specimens of *Asplenium Bradleyi*, Eaton, one of the rarer rock Ferns from Tennessee, to show its extreme variability. The simplest fronds exhibited were found in a damp, cold, perpendicular rift, which no sunshine could enter, at an elevation of about 1700 feet; these fronds had the simple pinnate structure, with green rachis and rounded toothed pinnae of *A. viride*, Hudson, but were more coriaceous than in that species. The other plants exhibited, however, showed a gradual tendency to become more and more compound, culminating in a luxuriant specimen with pinnatifid fronds 10 inches long, the green rachis becoming purple and shining in all the plants exposed to the sun's rays. Mr. J. C. SHENSTONE exhibited a collection of 700 photographs of British flowering plants, to show what could be accomplished by means of the camera in the direction of botanical illustration. He contended that photography was the only means by which the lines and masses of our flowering plants, as truly characteristic as the less subtle characters by means of which botanists group and arrange plants into orders, genera, and species, could be readily reproduced. He explained the various technical processes and apparatus necessary for successful plant photography, and alluded to the difficulties inseparable from the photography of plants in their natural habitats, &c. His remarks were illustrated by means of lantern-slides. Mr. J. B. CARRUTHERS, F.L.S., exhibited specimens and lantern-slides to illustrate the growth of the vegetable canker *Neotria ditissima* on the Cocoa-plant, and gave an account of certain experiments which he had made to destroy it without injury to the tree which it attacked.

STABLE-MANURE FOR POTATOS.—According to some experiments carried out for the Wilts County Council, a more profitable crop was obtained with the use of stable-manure, at 5s. a load, than with artificials. The stable-manure undoubtedly enabled the plants to resist the effects of the drought of the last two seasons.

FRUIT CROPS IN QUEENSLAND, 1900.—Acting upon instruction from the Queensland Under-Secretary for Agriculture, the Instructor in Fruit Culture attached to that department, has forwarded to us (under date January 15), the following interesting particulars connected with the fruit crops for the current season:—The last figures available show the following acreage and returns for the following fruits:—

Bananas	...	5284 acres	...	Produce	46,547,090 doz.
Pineapples	...	1130 "	...		462,752
Oranges	...	2272 "	...		1,527,460 "

The prospects of the present crop are as follows:—Bananas: The dry spring has somewhat retarded this crop, but recent rains have greatly improved it. Pineapples will be ready for marketing within a month; there is a good show of fruit on both rough-leaved and smooth Pines, and the recent rains will tend to improve the size, which promised to be small. Oranges are very patchy; some districts promising record crops, whilst others will be less than average. The same remarks apply to Mandarins. Passion-fruit has been a good crop, as

have also been Strawberries and Cape Gooseberries. Mangoes are only a small crop in the southern part of the colony.

BORDEAUX MIXTURE AND THE POTATO DISEASE.—According to the experiments made on behalf of the Wilts County Council, the average gain from the use of Bordeaux Mixture as a preventative of the Potato disease amounted to over £2 10s. per acre. The application is specially valuable to late varieties. Two applications are generally necessary, the first being most advantageous, whilst no benefit accrued from a third spraying.

CALCUTTA ROSE SHOW.—A Rose show in January is something of a novelty; one held at Calcutta on January 26, proved a thorough success in every respect in spite of a hailstorm which traversed almost the entire length of the Gangetic plain, and destroyed many Roses intended for exhibition. The varieties shown were mostly such as we are familiar with here. A full report of the show is given in our energetic contemporary, *Indian Gardening* of February 1.

NITRAGIN.—According to the *Report of the Agricultural Demonstrations at Calne, Wilts* (Eyre & Spottiswoode), a considerable gain has resulted on an average of three years from the employment of nitragin (bacteria obtained from the root-nodules of Leguminous plants). These bacteria absorb the nitrogen from the atmospheric air in the soil, and the result is the formation of nitrates, which are serviceable to the nutrition of the plant. It thus happens that the soil may become positively richer in nitrogen than it was before the growth of the crop.

THE CURVATURE OF ROOTS.—The fact is obvious enough, and many explanations have been given. Mr. J. B. POLLOCK, in the *Botanical Gazette* (Chicago) for January, has an excellent paper, in which he summarises what has been already published, and adds numerous details of his own experiments. The general conclusion is, that the protoplasm is sensitive to, or responds to, the influence of a stimulus—so much is universally acknowledged. The tip of the root is also known to be specially sensitive, and the effect of the stimulus whatever it may be, is transferred from the tip to the cells of the cortex. The effect of the stimulus so transmitted is to increase the tension between the cortex and the central cylinder on the convex side, and to decrease or reverse the tension on the concave side. The alterations in tension on the concave side are due to the circumstance that the protoplasm becomes more permeable to water, some of which exudes, and is taken up by the cells on the convex side, which thus ultimately contain more water than those of the concave side. In brief, the stimulus induces a greater flow of water to the cells of one side than to those on the other—hence the curvature.

"JACK AND JILL'S JOURNEY: A TOUR THROUGH THE PLANT KINGDOM."—This is the title of a book by PHOEBE ALLEN, and published by WELLS, GARDNER & CO. It is intended to tempt children to take notice of plants, and to learn the lessons they teach. We think such attempts are well intentioned but rarely successful, the children recognise both the powder and the jam, and while they do not like either, they specially object to the mixture of both. At least, that is our experience. We are bound in justice to add that in this case the powder is of good quality, which is not always the case in books of this character. The information, so far as it goes, is accurate. The book is appropriately illustrated, and has a sufficient index.

GERMAN DENDROLOGY.—We have before us the *Mitteilungen der Deutschen Dendrologischen Gesellschaft*, or Transactions of the German Dendrological Society, for 1899. It opens with a coloured figure and description of *Berberis Thunbergi*, by Baron von St. PAUL. This species is remarkable for the rich purple coloration of the leaves in autumn. Herr BEISSNER contributes a

useful paper on the exotic trees suitable for forests, and the decoration of wooded tracts. Herr PURPUS calls attention to certain novelties, such as *Ribes Spethianum* of Kühne; *Crataegus intricata* of Lange; *Euonymus caryophylla* of Miquel; *Celtis Davidiana* of Carrière, &c. Dr. KÜHNE contributes an elaborate paper on the occurrence of papillae and stomata on the upper surface of the leaves of certain trees. M. USTËRI has a paper on the *Berberis* and its allies. *B. stenophylla* is regarded as a true species, and not a hybrid. The publication is full of varied and interesting matter.

SPRING AT KEW.—Already there are signs of the beginning of a new year, florally speaking. Snowdrops abound, Crocuses are putting in an appearance, and the gorgeously-coloured Irises, such as *I. reticulata* and its allies, are in full bloom. Some flowering shrubs, such as *Cornus mas*, are in full bloom, and the very beautiful *Prunus triloba* is not far behind. *Eranthis cilicica* is in full bloom; it resembles the common Winter Aconite, but the flowers are rather larger, of a different shade of yellow, and the involucre is cut up into much narrower segments; in the young state these are sometimes of a brown colour, and form a kind of frilled collar around the unopened flower.

PLANTING IN THE CAPE COLONY.—The Forestry Department is undertaking the planting of Conifers for timber. At present a quarter of a million is annually paid for imported wood, mostly coniferous.

KEW AT THE PARIS EXHIBITION.—The director of the Royal Gardens has sent to the Paris Exhibition, a series of large-sized photographs illustrative of the Royal Gardens, Kew. They have been taken by Messrs. STUART & GUNN, of Richmond, and are representative of the various houses, museums, laboratory, herbarium, library, &c. The views of the lake and of the Rhododendron valley are not only representations, but lovely pictures of the scenes.

LAMBETH PALACE GROUNDS.—The Archbishop of Canterbury has consented to hand over to the London County Council a large portion of the grounds attached to Lambeth Palace to be used as a public open space. The Parks Committee of the Council have had interviews with the Primate as to how they proposed to deal with the field adjoining the Palace should they be allowed to undertake the management of it for the public benefit. It was explained at the interviews that the desire of the committee was to be enabled, with the permission and during the pleasure of the Archbishop, to undertake to lay out the ground for cricket and other games, to provide a gymnasium for children, and a playing-ground to which only women and children should have access. The proposition was that, by so treating the land, and by providing a sufficient staff to control and regulate the use of it, it would be practicable to keep the field open to the free use of the public all day. The Archbishop received these proposals with evident pleasure. The Parks Committee state that, by the generous action of the Archbishop, a playing-ground about 10 acres in area will be added to London's open spaces without cost to the county beyond what may be necessary for preparing and controlling the ground.

"ANNE PRATT'S FLOWERING PLANTS."—The new edition, edited and revised by Mr. STEY, has just been completed. The plates will be very serviceable to students of British botany. The work is published by FREDERICK WARNE & Co.

SOLDIERS' WIDOW AND ORPHAN FUND.—The "Geo. MONRO" entertainment committee, composed of the staff of Mr. GEO. MONRO, the Covent Garden fruit-salesman, and agent for the English Grape Growers' Association, gave a very successful smoking concert in the grand hall of the "Freemasons' Tavern" on Thursday, February 22, which was extremely well attended. Mr. GEO. MONRO

occupied the chair, with Mr. GEO. TIFFEN in the vice-chair, and he was supported by Messrs. A. J. and E. G. MONRO, and Mr. GEO. MONRO, jun., Mr. EDWARD ROCHFORD, Mr. ASSBEE (superintendent of Covent Garden Market), and many others well known in the trade. The programme was a long, varied, and attractive one, and encores were, so far as possible, avoided. Half of the profits of the concert will be handed over to the "Daily Telegraph Soldiers' Widows' and Orphans' Fund," and a collection in the room for the same object, after an eloquent appeal by the chairman, realised the handsome sum of £27 5s.

FRUIT FROM THE ANTIPODES.—We have received from the Manager of Inland Traffic of the Orient R.M. Steamship Co. the list of sailings

local artistes. Mr. T. CAIRNS occupied the Chair, and read an interesting and appropriate address by Mr. S. ARNOTT, Carsethorn, who was to have presided, but was prevented from attending by illness.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—We are requested to announce that the annual general meeting of members of this society will take place at the Caledonian Hotel, Adelphi Terrace, Strand, on Monday, March 12, at 8 P.M. Mr. S. T. WRIGHT, of the Royal Horticultural Society's Gardens, Chiswick, will preside.

A SPRING SHOW, we are told, will be held on April 10 and 11, under the auspices of the Royal Botanical Society of Manchester.

the business transacted at the recent meeting, will be published in the forthcoming *Journal*, which may be expected in May. A committee has been appointed to arrange a dinner of old and present Kewites, which will be held in London this spring.

THE ANCIENT SOCIETY OF YORK FLORISTS is a vigorous horticultural institution in the big northern county, that we are glad to see by the committee's annual report just to hand, is in a very satisfactory condition. Its membership is now about 750, and larger than at any previous period of its existence. There is also a balance on the right side shown in the accounts. The society has decided to hold four minor exhibitions in the coming season, in addition to the large Chrysanthemum show which will take place on November 14, 15, and 16. The

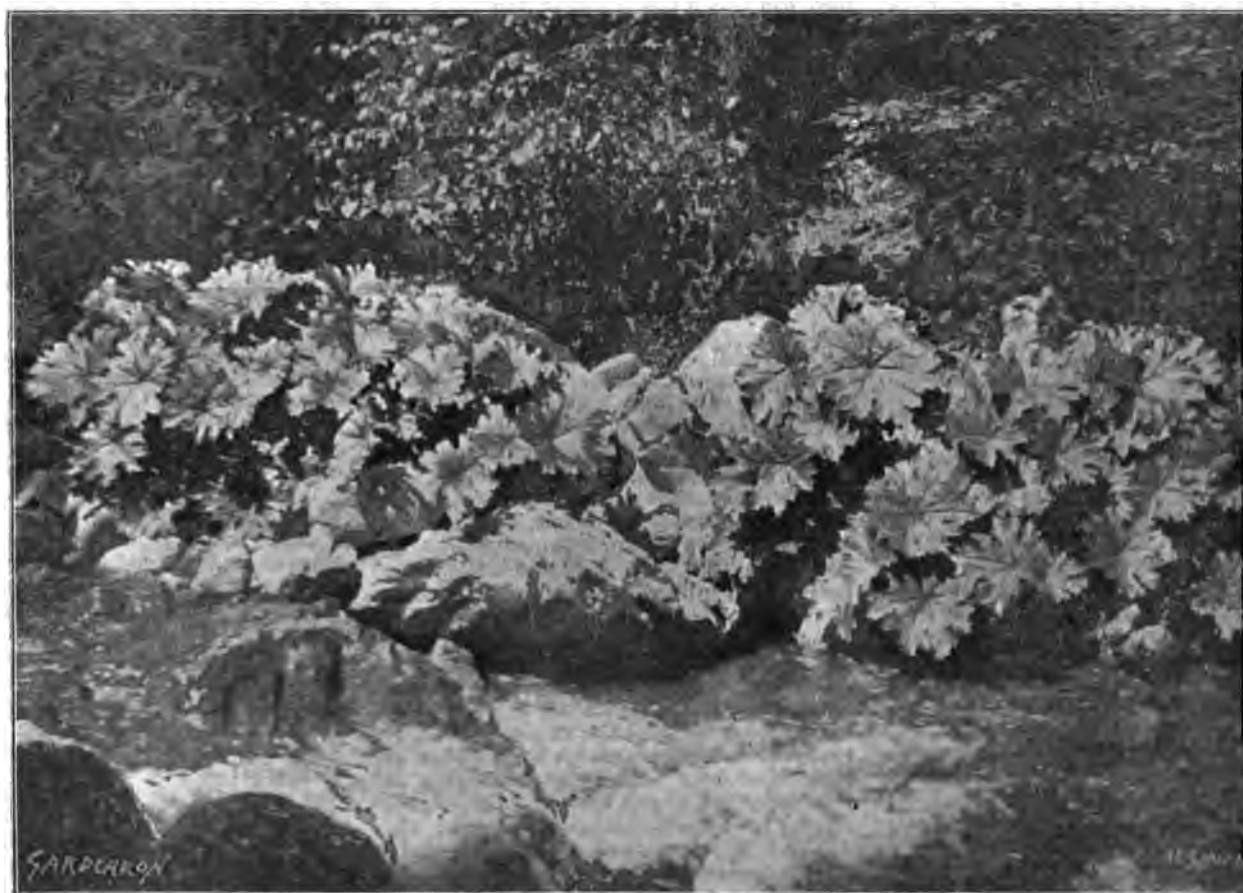


FIG. 42.—*SAXIFRAGA PELTATA* AT HOME BY THE SIDES OF A STREAM IN HUMBOLDT COUNTY, N. CALIFORNIA. (SEE P. 140.)

(From a photograph taken by Mr. J. Burtt Davy.)

of fruit ships for the ensuing season. From this it appears that the *Oroya* sailed from Sydney, N.S.W., on February 17, and is due at Tilbury with the first fruit cargo on the 31st inst. This will be followed by the *Ophir* on March 3, the *Oruba* on March 17, the *Ormuz* on March 31, the *Omrah* on April 14, and the *Cuzco* on April 28. The dates of arrival here are in order as follows: April 14, April 28, May 12, May 28, and June 11. As in former years, the number of vessels employed may be increased according to cargo demands.

DUMFRIES GARDENERS' REUNION.—The gardeners of the neighbourhood of Dumfries held their annual reunion on Friday night, when there was a good attendance. Tea was served by a competent staff of ladies, and later in the evening an enjoyable programme of music was submitted by a number of

THE KEW GUILD.—The annual meeting of the past and present "Kewites" was held in the garden library, Royal Gardens, Kew, on February 22, and in the much-regretted absence of Mr. GEO. NICHOLSON, President of the Guild, the chair was taken by Mr. W. BOTTING HEMSLEY, F.R.S. The feeling of sympathy that exists between horticulturists who have had the good fortune to acquire part of their education at Kew, finds expression at these guild meetings. A greater number of old Kewites were present on this than on any previous occasion, and an uncommonly lively interest was manifested by them in settling matters connected with the management of the guild. Members who now live long distances from Kew will be glad to know that the guild is a flourishing institution, and it should attract the active interest of all who are entitled to membership. Information of the financial state of the guild, and of

dates of the minor shows are April 18, May 23, July 18, and September 5. At the Chrysanthemum show, the prizes to be offered are as usual very liberal. For a group of Chrysanthemums, with foliage plants interspersed, a sum of £36 15s. is put aside; and for a group of Chrysanthemums exclusively, prizes are offered to the value of £23 2s. Exhibits of fruit have usually made a feature at these shows, and prizes are again offered in such classes. The secretary is Mr. G. F. W. OMAN, 38, Petergate, York.

PRESENTATION TO A SCOTCH GARDENER.—On the occasion of the marriage of Mr. W. H. WAITE, foreman of the herbaceous department, Royal Botanic Garden, Edinburgh, the garden staff presented him with a marble timepiece and a silver cruet, in token of their esteem. Mr. RICHARDSON, head gardener, in the presence of the staff, made

the presentation, adding a few remarks expressive of their sentiments. Mr. WAITE suitably replied, thanking them for their kindness.

MR. W. H. LEES, of Trent Park Gardens, New Barnet, of Chrysanthemum fame, is about to set up in business as a fruiterer and florist at Watford. He will have the best wishes of a numerous circle of friends in this new undertaking.

PUBLICATIONS RECEIVED.—*Plantes de Serre*, par MM. G. Bellair and L. Saint-Léger. (Paris: Octave Doin, 8, Place de l'Odéon, and Librairie Agricole de la Maison Rustique, 28, Rue Jacob). This book will be noticed again in our columns, and at greater length.—*Missouri Botanical Garden, Eleventh Annual Report*; this includes valuable papers on:—A Disease of *Taxodium distichum*, and a similar disease of *Libocedrus decurrens*, by H. Von Schrenk; *Agave expatriata* and other *Agaves* flowering in the Washington Botanic Garden in 1898, by J. N. Rose; A Revision of the American species of *Euphorbia* of the section *Tithymalus* occurring North of Mexico, with numerous plates; and Revision of the species of *Lophotocarpus* of the United States, and Description of a new species of *Sagittaria*, by J. G. Smith. There are many and excellent plates.—*Report of the Calne Agricultural Demonstrations*, from the Wilts County Council Agricultural Committee, 1899, Appendix D; Crops: Section I., Quemerford Station; Section II., Lickhill Station. (Beyre & Spottiswoode, East Harding Street, Fetter Lane, E.C.)—*Transactions of the Royal Scottish Arboricultural Society*, vol. xvi., part 1; this contains, among other matter, an appreciative notice and a portrait of the late Mr. Malcolm Dunn. (Edinburgh: Douglas & Foulis, Castle Street).—From the New Zealand Department of Agriculture: Reports, 1898-99, of the Division of Biology and Pomology, and Seventh Annual Report of the Department of Agriculture, 1892.—*Directions for Surveying and Arranging Home and School Grounds*, by Warren H. Manning (Boston, Mass.). A useful brochure, with many illustrative sketches.—*A Handbook for Planning and Planting Small Home Grounds*, by Warren H. Manning (Published by Stout Manual Training School, Menomonie, Wis., 1899). The title explains the scope of this little book, which includes a "list of native and commonly-cultivated plants that are represented in the collection upon the Stout Manual Training School Grounds."—*Tijdschrift voor Tuinbouw*, vijfde Jaargang, zevende en achte aflevering.

SAXIFRAGA PELTATA.

FOR the margins of streams, or for the bog garden, there are few plants more effective than this. The rockery at the Royal Gardens, Kew, affords ample illustration of the fact. The plant is of robust habit, and has a thick fleshy root-stock, from which the leaves spring. These are long-stalked, peltate, orbicular, palmately-lobed, and often as much as a foot across. The purple flowers are, it is said, arranged in clusters, which appear before the leaves. Our illustration (fig. 42, p. 139) is reproduced from a photograph taken by Mr. Burt Davy, from some plants growing in their native country. The leaf-stalks and flower-scapes are said to be used as articles of food by the Indians; see *Botanical Magazine*, t. 6074; and *Flora of California*, i., p. 193.

HARDY TERRESTRIAL ORCHIDS.

IN response to a request from one of our readers, who desires information upon the cultivation of hardy terrestrial Orchids from the pen of an expert, we reproduce some notes that were published in our columns on May 4, 1872, respecting the treatment given to the unique collection that then belonged to H.R.H. the Comte de Paris, at York House, Twickenham. The specimens that in those days were frequently shown at South Kensington by H.R.H.'s gardener, Mr. Needle, have never been excelled; and no collection, so far as we know, has been grown with greater success. On the same date that the notes were published, we gave a faithful illustration of a pot of *Ophrys tenthredinifera* shown from that collection, and which contained five very strong spikes of flowers.

The following notes refer chiefly to the cultivation of the species in pots, but it is possible to form a very interesting collection by obtaining the bulbs of various species, and planting them in positions where they may obtain conditions of soil and moisture similar to those which exist in their natural habitats. We shall be pleased if some of our correspondents who have had

experience in the cultivation of species of hardy terrestrial Orchids in the open, under more or less natural conditions, will give the results of their observations, in order to help those of our readers anxious to treat these plants successfully.

"First, then, it may be advisable to mention one or two points of interest in relation to their propagation, or we ought rather to say retention, for propagate, in the sense of multiplying, they will not, except in one or two solitary but well-marked instances. To get a stock of any particular sort, the tubers must be collected; these tubers may be divided into two classes, round and fusiform, the former belonging for the most part to the genus *Ophrys*, and the latter to the genus *Orchis*. They both produce and mature the flowering tubers the season before, so that they may be had in flower every spring. This fact is worthy the more attention, as it is a well known fact that in their native habitats they flower one year, and take a rest of one or two years after flowering, occupying the interval by forming new tubers. Mr. Needle can account for this phenomenon in no other way than that it is due to "collectors" securing all the larger tubers in favourable seasons. Certain it is that the plants under his charge flower every spring, a fresh tuber being formed the summer before, and which becomes thoroughly ripe when the old one, having played its part—that is, flowered—decomposes in much the same way as Potatoes "sets." Mr. Needle's experience leads him to believe that but very few of them make more than one bulb, but he finds that *Ophrys bombyliflora* will frequently make two.

"It should be understood by every one who intends growing these plants, (1) that their greatest enemies are heat and water, either of which applied in excess is fatal to their well doing; and (2) that they will not stand forcing or retarding, but must be allowed to come along and flower in their own due season. The plants which flowered early this spring are now going to rest, and Mr. Needle will keep them in their present quarters—an open frame facing the south—and gradually withhold water until the plants are dried off. This treatment is followed only in the case of those with round tubers, as the *Ophrys*, which will dry off. The fusiform-rooted species must always be kept moist, but not necessarily wet. When the plants are sufficiently dried off, which will readily be seen by the decaying foliage, they will be removed to a cool, shady frame under a north wall, no sun being allowed to reach them, where they will remain dry and at rest until they show signs of starting into growth again in the autumn. They will then be turned out, and be fresh potted in good turfy loam, mixed with a little leaf-mould and sand or road-scrappings. The pots must be thoroughly well drained, and the soil must be of an open porous nature, or success will not follow. These conditions are so important in themselves, that it does not seem to matter much what the compost is, so long as they are secured. After the plants are fresh potted, they will be left in the same frame until they have made a moderate growth, and will then be removed to the frame they now occupy, and which is provided with one row of piping, which is, however, only used for keeping out frost and dispelling damp. Here they will finish their growth, water being applied to them in the most careful manner, and they will be removed to the conservatory or any other cool-house to flower. As regards the best-sized pots to grow them in, Mr. Needle finds from experience that they do considerably the best when grown five tubers in a 48 (5-inch) pot; the tubers (like cuttings) coming much stronger when situated near the sides of the pots. Grown singly in small pots the roots seldom appear to increase in size. As before observed, the bulbs of the *Orchis* section will not stand drying off, but they may be treated in the same way as the *Ophrys*, with that exception.

For general cultivation, Mr. Needle recommends the following:—*Ophrys tenthredinifera*, the

strongest grower of all; *O. lutea*, *O. speculum*, *O. apifera*, and its variety, *mutilex*; *O. apiculata*, *O. fuscus*, *O. mammosa*, *O. Ferrum equinum*, *O. atrata*, *O. arachnites*, and *O. aranifera* var. *specularia*; *Orchis morio*, and its several varieties; *O. laxiflora*, *O. mascula*, *O. maculata*, *O. papilionacea*, *O. quadripunctata*, *O. longicruris*, &c. This list may, of course, be added to, according to the inclination of the grower, for extent and variety.

NATURAL GROWTH OF TERRESTRIAL ORCHIDS.

"The exact nature of the Orchid tuber is rather complicated, nor can it be said that botanists are wholly of one mind concerning it. The life history, however, is the point that mostly concerns cultivators, on which account we give here a very condensed account of the mode of growth of the tubers of *Orchis* (*Himantoglossum*) *hircinum*. The species just named, says Fabre, consists of three forms or stages—(1) the flowering stage, in which the stem develops a spike of flowers, whose function it is to propagate the species by seeds; (2) the propagative stage, in which the stem produces no flowers, but only leaves, in the lowermost axils of which are developed tubers, in this stage the multiplication of the plant by tubers is provided for; (3), the dispersal stage, in which the end of the stem becomes distended into a tuber, while the lateral buds perish. The object of this is to prevent the accumulation of tubers in any one spot, by facilitating what may be called a process of migration. It is probable that the seedling *Orchis* acquires this latter form only, in the first instance, and produces terminal tubers for some years without flowering. Then circumstances alter, and flowering-shoots are produced. It is hence not until after several flowerless shoots have been produced that flowers and seeds are formed. It will be seen from this that terrestrial Orchids undergo, under natural circumstances a series of alternations of generations.

In the second stage, the propagation by means of lateral tubers, may go on, under certain circumstances, for years, without the flowering-stage being reached. These facts supply the explanation of a fact that often puzzles collectors—the great abundance of Orchids in a given locality in one season as compared with their rarity in the same spot another year. Many years ago, a gentleman who was a keen and accurate observer, communicated to the Editor of this Journal a fact relating to the Bee-Orchid, which may in a measure be explained by the peculiarities of growth just mentioned:—"For forty years a certain field was under the plough. After this it was laid down for grass; and the third year after it was thus laid down there appeared in it at least 100 Bee-Orchises—more, in fact, than existed [query, in one spot of equal size?] in a circuit of 5 miles round." M. T. M.

NURSERY NOTES.

MESSRS. J. CARTER AND CO.

THAT the Chinese Primrose may be very successfully cultivated in strictly urban districts, is strikingly illustrated at the present time by a collection of plants in bloom in the Forest Hill Nurseries of Messrs. Carter & Co., High Holborn. It must be understood, however, that these plants are not merely grown to produce a display of bloom. The blooming period is but an incident, albeit an essential one, in the cultivation of the plants for the production of ripe, saleable seeds. This being the prime object, details of cultivation are so arranged as to encourage plants of a type best suited to the purpose. It is a fact that young plants in 5-inch or less-sized pots, will yield better, fuller seeds, than such older and larger plants in 6-inch, and even 7-inch pots, that many gardeners find useful for conservatory decoration. Accordingly, the seeds are sown comparatively late in the previous season, with the result that most of the plants begin

to show strong flower-spikes in January, whilst still in 4 or 5-inch pots. Such are the plants now in bloom at Forest Hill. There are several thousands of them, and the perfection to which the plants have been cultivated in a situation so near to London, remembering that they make nearly the whole of their growth during the winter months, is such as to excite surprise.

We were interested to know what it had been found possible to do with that curious *Primula*, the "Bouquet," described in our pages February 12, 1898, p. 106. This was an uncommonly strong-growing plant, that produced flowers with foliaceous calices, and in other other respects was very distinct. It produces so few seeds, however, when fertilised with its own pollen, that the type will probably never be offered for distribution.

pollination has been effected. Among single flowered varieties with pink or blush coloured flowers, there are *Imogene*, of very free habit, rather small blooms, and fern like foliage; *Rose Queen*, which has too little colour to justify its name, but is nevertheless an excellent variety; and *Princess May*, a giant form, with large flowers of much substance, and the most attractive of the three mentioned. Of whites there are *Elaine*, *Elaine Improved*, and *Holborn Queen*. The first-named variety may be obtained with plain or fern-like foliage, but *Elaine Improved* with plain foliage only. *Elaine Improved*, however, has larger flowers, and the plants are dwarfier. *Queen* is the most attractive, being a pretty fern-leaved variety, that bears profuse and bold flowers. But instead of remaining pure white, they assume a

the Chinese *Primrose*, and are not so perfectly double as to render them impossible of propagation by seed. One of the earliest of these to bloom is a white one known as *Snowflake*. *Aurora* has very pale salmon-pink tinted blooms. *Princess of Wales* is nearly white, but occasionally flaked with rose; *Prince of Wales* produces rose-coloured flowers, with prettily crimped margins. Vivid and double scarlet are high coloured varieties, the former possessing a shade of carmine. *Lilac Queen*, as its name would imply, has lilac-tinted blooms, and is distinct from all others.

HOME CORRESPONDENCE.

WINTER-FLOWERING CARNATION.—I send a few blooms of *Carnation William Robinson*, a variety which I think is not quite so well known as its good qualities justify. When the blooms are large, this variety is inclined to burst its calyx; but where glass accommodation is restricted and buttonholes are in demand, no scarlet-flowered variety can surpass it in the winter. By growing on a few two-year-old plants in 7 or 8-inch pots, and stopping the shoots twice during the early part of the season, viz., May and July, flowers of fair quality are obtainable in October. As the cold weather advances, small batches of plants may be introduced into stove temperature at different intervals, and a succession of bloom kept up for several months. Plants so treated ought to be transferred to the rubbish-heap when flowering is finished, being useless for propagating uses. One-year-old plants come into flower later than older ones, which helps considerably to prolong the flowering season; but if the young plants are wanted for growing on, they must not be exposed to high temperatures. *J. Minty, Riverdene, Cookham.* [The blooms are nicely double, and of a bright scarlet colour, not differing so far as we can distinguish from others of that tint. Ed.]

AFFORDING WATER TO PLANTS.—The question raised in the *Gardeners' Chronicle* at p. 80 with regard to temperature of water afforded plants is a very interesting one! I have made many experiments, and have also had discussions with others, and I believe most of those who have watched results will be in favour of using cold water in preference to warm. Of course, this requires a little qualification. I should not think of syringing with very cold water in the stove. And although there are many plants which may be watered with water barely above freezing-point, it does not follow that all subjects may be so treated; yet to come to the main issue I should be in favour of the water being rather below than above the temperature of the house, for I have had many instances of warm water being detrimental to plants. The earliest I remember was in regard to *Mignonette*. In this instance there was no other difference in treatment of temperature except that one portion was afforded water that was warmed in a tank built over a boiler, and the other was quite cold. The result was that the latter was short and sturdy, while, where warm water was used, it was much weaker, and did not come into flower so soon. I have also found that for the propagating-house it is better to have the water rather below than above the temperature of the house. Among those who have confirmed my opinion in this, I may mention the late Mr. Bause, who was one of the most successful plant raisers of his time. It is, however, inadvisable to go to either extreme, especially with regard to tender stove-plants, by using water too cold, and more so in regard to using warm water for any subjects requiring cool treatment. Rain-water is undoubtedly better than spring-water, particularly in chalky districts, though not so important in root watering. Forsyring it is most important, for in the case of Palms and other foliage plants which have to be frequently syringed, the chalky deposit not only disfigures the plants, but it stops the pores and prevents the natural absorption of moisture which is so essential to the health of subjects which derive more benefit from atmospheric rather than root-action. *A. Hemsley.*

TEA ROSES ON THEIR OWN ROOTS.—After trying to grow Roses of all kinds and in all ways for more than half a century, I have come to the

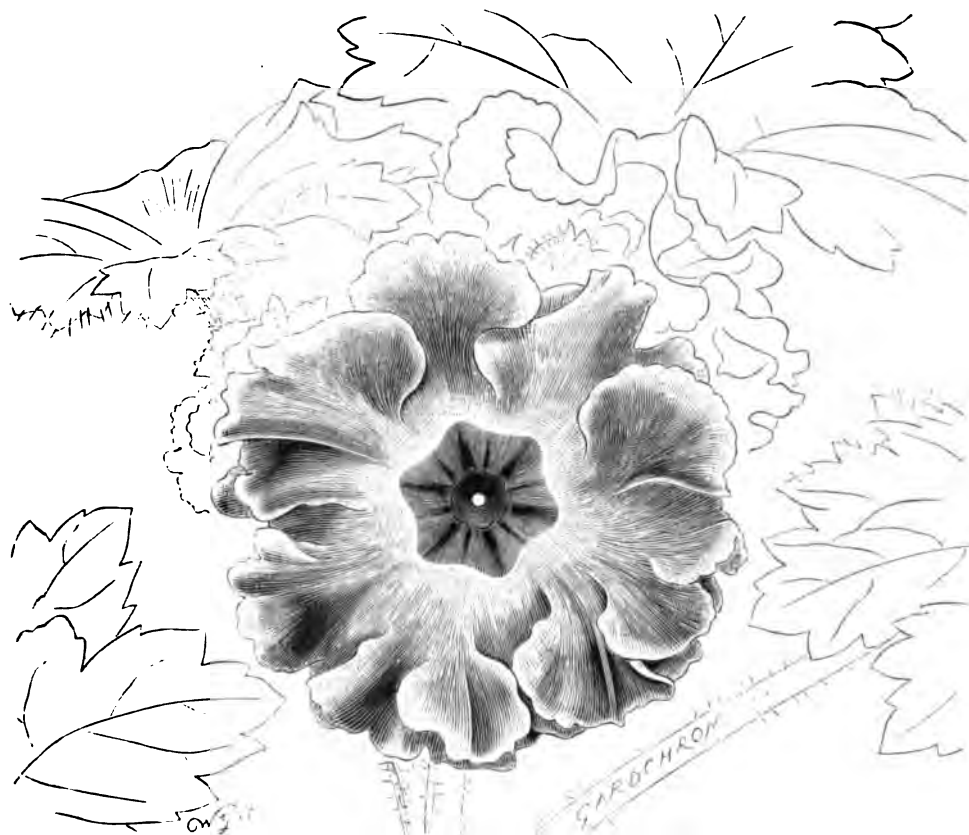


FIG. 43.—*PRIMULA SINENSIS*: A NEW VARIETY, AT MESSRS. CARTER'S NURSERY.
(Colour of flowers bright rose, with a white band around yellow eye.)

In conjunction with another parent, the "Bouquet" has been used to good effect. Several exceedingly fine giant but perfectly normal varieties have flowered from this cross, that, in general attractiveness are superior to all others in Messrs. Carter's collection. One of these was pure white with yellow eye, another mauve coloured, and the most superb of all is reproduced in fig. 43, from a photograph taken by Mr. Bard, who has the management of these nurseries. This variety has flowers of a clear bright rose colour; the eye is yellow, and around this is a white band which casts a silvery halo over the adjacent rose colour. All of these varieties have large flowers of perfect form, and the petals are wavy and fimbriated to a remarkable degree. But these novelties have to be "fixed," and for a few seasons hence.

THE NAMED VARIETIES

are those that will be available for distribution. These are in large batches, and may be readily compared or contrasted one with the other, but the colours of the flowers begin to wane directly their

blush tint after being open a short time. *Hercules* has rich mauve-coloured, prettily fimbriated flowers, and a yellowish-green eye. We noticed no yellow flowered strain. *Holborn Blue* is a very pretty variety, as nearly blue as any *Primulas* have yet been seen. When first open the flowers have a pretty effect, owing to there being a dark purple band round the yellow eye. Of brighter coloured varieties, we were most attracted by one called *New Scarlet*. It has effective flowers of very rich red colour; it is not yet ready for distribution, but is likely soon to supersede the variety at present known as *Scarlet*. *Ruby* is much later to bloom than *Scarlet*, and is now producing a grand lot of flowers; it is very rich in colour, and has fern-like foliage, this characteristic being the principal difference between this variety and one known as *Carmine*. *Vermilion* represents the deepest of the bright-coloured varieties. Among several other single-flowered varieties may be mentioned *Venus*; the flowers are mostly white, but few are pure, owing to splashes or flakings of red.

The semi-doubles represent a useful section of

conclusion that in the very unfavourable conditions of cold and wet soil, and damp, sunless atmosphere, which my garden presents, I must be satisfied with poor results. Advice given on the spot from many very successful growers has frequently been acted upon, though often contrary and inconsistent, and I do not write to ask for more. Dwarf-worked Tea Roses are planted by the hundred, and after struggling in a mutilated form through two or three mild winters, are killed to the base by a winter like this, and the following summer presents little more, in their place, than a forest of Dog Rose suckers. Why do I not grow the Roses on their own roots? I always regret, when too late, that I have not taken a quantity of cuttings. So I shall have to buy the plants: but where? I look through the catalogues of some dozen prominent nurserymen, and cannot find one which offers by the hundred Tea Roses on their own roots. I am told they do not pay; and of course one would expect to pay more for them than for worked Roses. But even at an advanced price, they do not seem to be in the market. *C. Wolley Dod, Edge Hall, Malpas.*

QUINCES IN SUSSEX.—Before this subject is dropped, the following remarks may not be unwelcome to many readers of the *Gardeners' Chronicle*. In old garden literature, two distinct forms of Quinces are commonly noted, the one the "Pomme de Coin" of the French, the other, the "Poire de Coin." The Belgians called the first-named "Queappel," the last "Queeeren." Markham called the former the male, or Quince Apple; the latter the female, or "Quineese." Lord Bacon again writes of Quincies and Melocotones; by the first of these referring to the Pear-shaped variety, and by the other to the Apple-shaped Quince. Quince is, of course, identical with the French Coing, Chanier's "Coyne," and the old English Quoyne, being exactly the same with the old French "Coin." I think it is Des Serres that says "Melocotone" as a name is derived from the skin of the fruit being *Cotonné*, hence the name would mean the "Woolly Apple." Leo Grindon considered the Quince the representative of the Golden Apple of mythology, and the "tapaesch" of Scripture. He quotes an interesting letter sent by Henry VIII. to one of his subjects, who had presented her sovereign with some "cotinate," in which she is requested to send some more "as soon as may be." The making of marmalade as well as other methods of preserving the Quince is exhaustively treated in the *English Housewife*, no less than twelve ways of treating the fruit being explained in that early work. There were two sorts of marmalade, the one red, the other white; the first-named being secured by the simple method of keeping a cover on the vessel while the preserve was cooking. *B.*

HARDY FRUITS IN HEDGEROWS.—I think this subject should be more ventilated in the horticultural press than it is, for there are many places in the country districts which might, with a trifling expense, be made beautiful and profitable if fruit trees of suitable kinds and varieties were planted in our hedgerows and road boundaries. The subject has been talked and written about frequently, but hitherto little good has resulted, many saying what would be the good of it, for the produce would be taken by anyone who chose to do so. It is my opinion that if the planting was general throughout the length and breadth of the land, there would be abundance and to spare. Moreover, fruit trees in hedgerows would be claimed by the owner or farm-tenant, and under the same protection by law as the other farm produce. I would prefer to see the hedges dividing the various fields on a farm selected as the sites for the trees, rather than those bordering public roads. Fruit trees succeed when planted in the line of old hedgerows if large holes are excavated and fresh loamy soil employed in the filling, and most of this could be obtained from field banks. Only tall standard trees with strong straight stems are suitable for this kind of planting, and protection against game, sheep, and other farm stock must be afforded; the trees must also be secured to stout stakes with tarred string, in a way that does not injure the bark, and the whole length of stem enclosed in strong rabbit-proof wire netting, which should be put into the ground 6 inches. As a protection against farm-stock, iron guards should be fixed until the trees have acquired age. In new hedges the trees should not be planted too

thickly, say 40 to 50 yards apart, according to the direction of the line of hedge with an eye to the views across country. It is now many years ago, that by desire of Lord Middleton I planted several hundreds of fruit trees in the hedged lanes of what is called the Home Farm at this place, and many of these trees have grown into capital specimens, and carry good crops of fruit, when otherwise there would have been only hedgerows. Keswick Codling, Ecklinville, Blenheim Orange Pippin, and other strong-growing varieties have done particularly well, Ecklinville especially so. Some hardy varieties of Pears and Plums were planted. I know of no more beautiful sight in the country than a fruit-tree covered with blossoms, or an Apple-tree loaded with its ruddy fruits. *Bailey Wadds, Birdsall, York.*

SOCIETIES.

ROYAL HORTICULTURAL.

FEBRUARY 27.—The display on the occasion of the meeting of the Committees of this Society on Tuesday last, was a better one than has yet been made this year. The weather having become exceptionally mild, opportunity was given Orchid cultivators to exhibit their novelties, and this being the first occasion for some time when it has been safe to show other than cut blooms, the opportunity was taken advantage of largely. Orchids were the best feature of the show, and the report below describes a considerable number of novelties that were staged.

The Floral Committee had before it a large collection of plants of Cyclamen, from Messrs. H. CANNELL & SONS; a magnificent display of Camellias in pots from Messrs. Wm. PAUL & SON, Waltham Cross, Herts, to which the Society's Gold Medal was awarded; several groups of miscellaneous plants and small exhibits, from the hardy plant nurserymen, of Irises, Narcissus, Cyclamens, and other very early flowering plants, most of them being shown in pots. Novelties that gained Awards were *Primula x kewensis*, *Iris stenophylla*, *Camellia General Hector Macdonald*, and the old *Agapetes buxifolia*.

The Fruit and Vegetable Committee recommended an Award of Merit to Apple "Cabalva," an old local Welsh variety, sent by Mr. PERRIGRAW, Cardiff Castle Gardens. Very well-fruited growths of *Vanilla planifolia* were shown from the Duke of NORTHUMBERLAND's garden; and ripe Papaw fruits from the gardens of LEOPOLD DE ROTHSCHILD, Esq. It rained during the whole of the day, and it was difficult to see the exhibits in the Drill Hall, owing to the poor light.

Floral Committee.

Present: W. Marshall (Chairman), and Messrs. C. T. Drury, Owen Thomas, H. B. May, Geo. Nicholson, G. Reuther, R. Dean, W. Howe, J. Hudson, J. Jennings, R. Fife, R. B. Lowe, C. J. Salter, Ch. E. Pearson, J. W. Barr, Chas. Jeffries, J. Fraser, Geo. Gordon, W. H. Lees, Jas. Walker, Chas. E. Shea, H. J. Cutbush, E. H. Jenkins, H. J. Jones, E. T. Cook, and Geo. Paul.

Messrs. Wm. CUTBUSH & SON, Highgate, London, N., in a group of miscellaneous plants, showed some capital specimens of *Ericas* in full flower. These included *E. melanthra*, *E. Wilmoreana*; *Epacris Lady Penmore*, white and pink; and *E. Diadem*, deep red; *Boronia megastigma* was shown well. *Daphne indicis rubra*, *Acacia Drummondii*, the most useful of *Acacias* for cultivation in small pots. A few small plants of *Forsythia suspensa* were in bloom, and there was a nice mass of *Iris reticulata* purpurea, and *Primula denticulata* alba. *Citrus sinensis* in several plants carried a nice crop of Oranges; and there were a few foliage plants used to relieve the flowering species already named (Silver Banksian Medal).

Messrs. JOHN PEED & SONS, Roupell Park Nurseries, Norwood Road, London, S.E., showed a group of nice lanceous plants (Bronze Flora Medal).

Four of the newer varieties of Violets were shown by bunches of blooms from Her Majesty The QUEEN's garden at Osborne, I. W. (gr., Mr. G. Noble). These were *Princess Beatrice*, *Primavera*, *Amiral Avellan*, and *Princess of Wales*, several of which have been illustrated in the *Gardeners' Chronicle* (Vote of Thanks).

Cyclamens were shown splendidly on this occasion by Messrs. H. CANNELL & SONS, Swanley, Kent. The exhibit included one hundred plants, a 1 of which were growing in 5-inch pots, and they were remarkable from the points either of cultivation, or of excellence in strain. The foliage was vigorous, of moderate size, and the habit of the plants compact. All of them were profusely bloomed, and the substance and brilliancy of the flowers, and the stout character of the stems showed plainly that they had been brought on gradually under the best cultural conditions. Of colours were noticed deep crimson, salmon-mauve, pale blush, white, and white with purple base, pink, and other varieties, including a nice batch of the "Papilio" section now becoming very popular (Silver-gilt Banksian Medal).

Really fine specimen *Cyclamens* were shown from the gardens of the Earl of JENSEN, Osterley Park, Middlesex (gr., Mr. J. Hawkes). There were two plants two years old, and they have not been reported since the plants bloomed twelve months ago; both of them were white varieties, and one of them carried as many as 140 blooms. These being shown late, were not placed before the committee.

Mr. GEO. MOUNT, of Canterbury, has again commenced contributions of Rose blooms to these meetings, and had upon this occasion about sixty very nice blooms. The varieties Mrs. John Laing, Captain Hayward, and La France, were those shown.

Messrs. F. SANDER & CO., St. Albans, showed a tiny plant of a new Azalea, from a cross between *A. Deutsche Perle* and *A. Miss E. Jarrett*; the flowers are pure white, very large, with pretty wavy margins to each petal.

Messrs. PAUL & SON, Cheshunt, showed blooms of a pretty white-flowering Lilac, named *Belle de Nancy*, and of Paul's Single White Rose, a very charming garden or Pillar Rose.

Lachenalia Nelsoni, the exceedingly pretty yellow-flowered species, was shown in excellent manner from the gardens of Lord SUFFIELD, Guntton Park, Norwich (gr., Mr. Allan). There were more than a dozen pots, magnificently furnished, and in addition some cut sprays of blooms (Silver Banksian Medal).

A very large group of *Narcissi* in pots was shown by PURNELL PURNELL, Esq., Woodlands, Streatham Hill. The Trumpet, Incomparabilis, Leodis, and Poeticus sections were all represented by numerous varieties (Silver Flora Medal).

Mr. H. J. JONES, Ryecroft Nursery, Hither Green, Lewisham, showed a group of bulbous plants flowering in pots, including a selection of varieties of *Hyacinths*. A few *Narcissus*, including *N. Telamonius plenus*, *obvallaris*, *rugibosus*, *Henry Irving*, &c., were similarly shown, and cut flowers of other *Narcissus*. This is the first exhibit of the kind made by Mr. JONES, who last year only commenced a trade in bulbs (Silver Banksian Medal).

Messrs. T. S. WARE, Ltd., Hale Farm Nurseries, Tottenham, showed a few hardy plants in pots, including *Leucojum carpatium* and *Galanthus nivalis* Whittall, a new large-flowering Snowdrop, respecting which a note appeared on p. 80. The pretty little Saxifraga *Bursieriana* was shown in flower. The new *Kranthis cilicica*, *Hyacinthus aureus*, several of the hardy *Cyclamens*, including white, rose, and purple-flowered varieties of *C. Atkinsii*.

Messrs. WALLACE & CO., Colchester, showed a small collection of very interesting hardy plants in flower, *Iris reticulata*, *I. r. major*, *I. r. Krelagei* (purple), and *I. Danfordiae*, &c. Also *Galanthus Fosteri robustus*, and *G. nivalis* Whittall, *Anemone blanda*, &c.

Messrs. BARR & SONS, King Street, Covent Garden, had a group of hardy plants in flower in pots. In the centre was a large clump of a white variety of *Iris unguiculata*. There were also *Narcissus minimus*, *N. cyclamineus*, &c., *Galanthus Ikarie*, hardy *Cyclamens*, species of *Crocus*, *Chionodoxa*, *Primula obconica grandiflora*, &c., and *Hellebores*.

Some well cultivated plants of varieties of the Chinese *Primula* were shown by Col. HERAY PLATT, Gorrindog, Llanfairfechan, and a Cultural Commendation was awarded them.

Messrs. JAS. VAITCH & SONS, Royal Exotic Nurseries, King's Road, Chelsea, again made a pretty show with blooms of varieties of their hybrid greenhouse *Rhododendrons*.

Messrs. W. PAUL & SON, Nurserymen, Waltham Cross, exhibited a group of *Camellias* arranged on the floor, measuring 20 yards in length and 3 in width, forming a sloping bank. The plants were excellently flowered, as we are now accustomed to see them in this annual display, their flowering season by no means at an end, numerous flowers being visible on all the plants. The group was set off by a line of *Clematis indivisa lobata* arranged along the front, the flowers of which afforded a marked contrast to those of the *Camellias*. Among varieties of the latter, *C. Lady Ardilaun*, having a white flower resembling an *Anemone*, was noted. As shown, it seemed to be scarcely an acquisition, but it may improve as the plant ages. Most of the old favourites were well shown, either as cut blooms or as plants. We noted *Chandleri*, *Mathotiana*, *Marchioness of Exeter*, *alba plena*, *Lady Hume's Blush*, *Monteroni*, *Teutonia*, *Boadicea*, &c. (Gold Medal).

Awards.

Agapetes buxifolia.—A very old *Vacciniaceae* shrub, suitable for cultivation in a warm greenhouse. It is hard-wooded, has small oval oblong, thick, bright green leaves, and tubular flowers, an inch or more long, and bright red in colour, produced in corymba. A well-flowered plant was shown by Mr. J. T. BENNETT-FOX, Holmewood, Cheshunt, gr., Mr. Downes (Award of Merit).

Camellia General Hector Macdonald.—A very fine new semi-double *Camellia*, flowers 5 inches across, and of a pleasing soft shade of rose colour. From Messrs. F. SANDER & CO., St. Albans (Award of Merit).

Iris stenophylla.—A new bulbous species, shown by Messrs. WALLACE & CO., Colchester, who obtained bulbs from Mr. Siehe, of Messina. The flowers were about 6 inches high, and of exceptionally pleasing colour. A fuller description and illustration will be given in our next issue (First-class Certificate).

Primula x Kewensis.—This is an accidental hybrid between *P. floribunda* and *P. verticillata*, and has originated in the Conservatory, Royal Gardens, Kew. It is fairly intermediate between its parents, and will make an excellent garden plant. The hybrid is fully described on p. 130 under "New Noteworthy Plants" (First-class Certificate).

Orchid Committee.

Present: J. Gurney Fowler, Esq., in the chair; and Messrs. Jas. O'Brien (Hon. Sec.), W. Cobb, J. Douglas, H. A. Tracy, H. T. Pitt, W. Thompson, E. Hill, J. Jacques, T. W. Bond, F. J. Thorne, J. W. Potter, J. T. Gabriel, H. J. Chapman, W. H. Young, H. Little, H. Ballantine, De B. Crawshaw, C. J. Lucas, R. B. White, J. Colman, and T. B. Haywood.

There was a very fine display of Orchids, Dendrobiums, as usual at this season, predominating.

Sir Trevor Lawrence, Bart., Burford (gr., Mr. W. H. White), staged a very fine group, containing well-flowered examples of many of the Burford hybrids. Specially fine were *Dendrobium* × *Clio* and *D. × Clio* Burford variety, showing the two extremes of colour and shape, the former being a narrow-petalled light form, and the latter a large round, rose-tinted flower, with rich orange-coloured disc. Also fine were *D. × Burfordiense*, *D. × melanodiscus* in variety, *D. × Schneiderianum*, *D. × speciosum-Kingianum*, *D. × The Pearl*, *D. × splendidum grandiflorum*, *D. × Juno*, *D. × Luna*, *D. × pallens*, *D. × Wiganie xanthochilum*, and other hybrids, all heavily laden with flowers. Of the species were the rare *D. Jerdonianum*, the little white *D. herbaceum*, the rose and purple *D. Treacherianum*, and a fine example of the white *D. barbatulum*. At one end of the arrangement was a nice group of *Phalenopsis Schilleriana*, and *P. Stuartiana*, and one example of *P. × intermedia Portei*; and among other subjects noted were a fine panful of several varieties of *Cypripedium* × *hirsuto-Sallieri*, *C. × Lebaudyum*, *C. × Alice*, *C. × argo-Morganie*, *C. × Rothschildianum superbiens*, *C. × Chamberlaini-insigne*; *Calanthe × gigas*, and a totally new and distinct hybrid, *C. × Ariadne*; the singular *S. African Habeneria Bonata*; *Masdevallia × Curlei*, *M. × Glaphyantha*, *M. Schroderiana*, *Bulbophyllum Cayanum*, &c. (A Silver-gilt Flora Medal was awarded for the group).

H. T. Pitt, Esq., Roselys, Stamford Hill, was awarded a Silver-gilt Flora Medal for a very fine group of rare and remarkably well-flowered Orchids, the centre plant of the group being a magnificent plant of *Cymbidium × eburneo-Lowianum*, with seven stout spikes of fully expanded flowers, and two in bud (Cultural Commendation). Noteworthy among a great variety of good things were *Miltonia × Bleuana*; a very fine set of varieties of hybrid *Odontoglossum* of the *O. × Andersonianum* class; the elegant *O. nevium* with three spikes, *O. cordatum*, four spikes; good *O. crispum*, *O. cirrosum*, *O. luteo-purpureum*, &c. *Epidendrum Wallisii*, *Cypripedium × Lathamianum*, *C. × nitens*, and others; *Lælia cinnabarina*, *L. harpophylla*, *Dendrobium atroviolaceum*, and other Dendrobiums, &c.

Messrs. Jas. Veitch & Sons, Chelsea, were awarded a Silver Flora Medal for a very fine group, in which were two examples of *Lælio-Cattleya × callistoglossa splendens*, of very rich colour; *L. × Myra splendens*, yellow, with purple lip; *L. × Antimachus* (*L. × Dominiana × C. Warscewiczii*), resembling a light-coloured *L. × eximia*; *Odontoglossum × crispum-triumphans*; *Cypripedium × Abas* (*villosum* ♂ *Stonesi* ♀). Several forms of *Lælia × Mrs. Gratrix*, varying from clear light yellow to yellow, tinted with rose; *Phalenopsis × Mrs. J. H. Veitch*, and *P. × Ariadne* (*Aphrodite* × *Stuartiana*); *Sophrone-Lælia × lacta superba*; *Phaius-Calanthæ × Niobe*, *Epidendrum × elegantulum*, *E. × O'Brienianum*, *E. radicans*, *Lælia glauca*, and many *Cypripediums* and Dendrobiums.

WELBORN E. ELLIS, Esq., Hazelbourne, Dorking (gr., Mr. Darrell), staged a very effective group of *Odontoglossums*, all finely grown and well-flowered (Silver Banksian Medal).

W. THOMPSON, Esq., Walton Grange, Stone (gr., Mr. W. Stevens), showed a small group of very fine *Odontoglossums*, including *O. × excellens nobiliss*, *O. × excellens spectabile*, the fine *O. × Wilkeanum concinnum*, *O. crispum*, "Yellow Gem," *O. × Loochristiense Kimberley*, a fine yellow flower, blotched and shaded with brown; and several very handsome and distinct forms of *O. × Adriane*.

Mr. JAS. CYPHER, Cheltenham, was awarded a Silver Banksian Medal for a good group of Dendrobiums, grown and flowered in his usual good style. Among them were a fine well-rounded form of *Dendrobium × Cybele*, *D. × splendidissimum*, Thompson's variety; *D. × s.*, Lee's variety; *D. × Almsworthi*, Cypher's variety; *D. × A. Leechianum*, *D. × Ethel* (*Rolfes roseum × moniliforme*), *D. nobile Cooksoni*, *D. crassinode album*, and other varieties; good *Sophrone* grandiflora, *Cypripedium villosum grandiflorum*, *C. insigne* Standard, *Miltonia Rozeii*, &c.

J. LEEHMAN, Esq., West Bank House, Heaton Mersey (gr., Mr. Edge), exhibited cut flowers of the pure white *Dendrobium nobile virginale*, Leemann's variety.

Baron Schroder, The Dell, Mgham (gr., Mr. H. Ballantine), showed *Lælia Jongheana*.

R. I. MEASURES, Esq., Camberwell (gr., Mr. H. J. Chapman), showed *Cypripedium villosum superbum* and *Restrepia striata*, with flowers of R. Falkenbergi and R. antennifera.

A. H. SMER, Esq., Hackbridge (gr., Mr. Humphreys), showed cut examples of *Cattleya Trianaei* Leena, C. T. Backhouseiana, C. T. Penelope, and a plant of the singular little *Lanum Berkleyi*.

Messrs. CHARLESWORTH & Co., Heaton, Bradford, showed *Epi-Lælia × Heatonensis* (*Lælia cinnabarina × E. Wallisii*). The plant was small, and bore one flower shaped like E. Wallisii. Sepals and petals Indian red, with a few purple spots on the petals. Lip whitish with purple markings at the base.

T. B. HAYWOOD, Esq., Woodhatch, Reigate (gr., Mr. C. J. Sutter), showed a grand plant of *Dendrobium × splendidissimum grandiflorum*, with seven long pseudo-bulbs furnished with

flowers (Cultural Commendation); and *Dendrobium × Virgil* (nobile roseum × *Answorthi*), a charming, nearly white flower with dark centre.

Messrs. F. SANDER & Co., St. Albans, showed a number of pretty plants of *Epidendrum × orphanum*, with white flowers variously tinted and spotted with violet, after the manner of *E. × Andresio-Wallisii*; also a fine specimen of the scarlet *Ephronitis × Veitchi*, *Lælia Jongheana*, and *Selenipedium × Titanum* (*longifolium Hilsenianum × Lindlayanum*), a very strong grower; and good hybrid *Phaius*.

De B. CRAWSHAW, Esq., Rosefield, Sevenoaks (gr., Mr. S. Cooke), showed *Lælia anceps Dawsoni rosefieldensis*, a white variety of *L. a. Dawsoni* form, but with pale pink tip to the labellum; also *Lælia Jongheana*.

S. G. LUTWICH, Esq., Beckenham, showed *Cypripedium × Beechense*, and a seedling *Dendrobium*.

Messrs. B. S. WILLIAMS & Son, Holloway, staged a good group, in which were *Cypripedium Boxalli nigrum*, *C. callosum*, *C. × discolor*, *C. × euryandrum*, *C. × Harrisianum superbum*, *C. × Lebaudyum*, *C. × Measuresianum*, *C. × cananthum superbum*, *C. × Pitcherianum*, Williams' variety; *C. × Wianianum*, *C. villosum*, *Dendrobium × Burfordiense*, *Cymbidium eburnum*, *Platyclinis glumacea valida*, &c.

The Right Honble. Lord Rothschild (gr., Mr. E. Hill), sent a singular *Schomburgkia*, with pretty flowers, with narrow undulate segments of a purplish-red colour, the lip centre purple, resembling a form of *S. undulata*.

Messrs. HUGH LOW & Co., Bush Hill Park, staged a group, in the centre of which was a magnificent example of *Cattleya Trianaei alba*, with thirty flowers; and with it *Odontoglossum crispum* Cronje, a handsome white flower, finely blotched with small chocolate spots; *O. a. Lord Kitchener*, a handsome rose tinted flower with large brown blotches. *O. c. luteolum*, pale yellow. *Cattleya Trianaei Titania*, a charming light form, *C. T. intensa*, *Cypripedium × Chas. Richman*, &c.

LT.-COL. SHIPWAY, Grove House, Chiswick (gr., Mr. Walters), showed *Cattleya Trianaei alba*, and a very fine dark form of *Cymbidium Tracyanum*.

J. S. MOSS, Esq., Wintershill, Bishops Waltham, showed a spike of the fine white *Cologyle Mossii*, and *Cattleya Trianaei*.

Awards.

FIRST CLASS CERTIFICATE.

Lælia × Edisa (anceps ♀ *purpurea* ♂), from Messrs. JAS. VEITCH & Sons, a charming hybrid with flowers, somewhat of the form of *L. anceps*, but much larger. Sepals and petals pale lilac; front of lip rich purple.

AWARD OF MERIT.

Cattleya Trianaei, West Bank House var., from J. LEEHMAN, Esq., West Bank House, Heaton Mersey (gr., Mr. Edge). A very handsome and singular variety, bearing some resemblance in growth and flower to *C. Warscewiczii*. Flowers large and of firm substance. Sepals and petals bright rose coloured; base of lip purple with white lines; broad middle area glowing orange colour, the finely expanded front lobe bright purplish-crimson, with a flambred light rose margin.

Zygopetalum Balli, Holbe.—From G. S. BALL, Esq., Wilmslow (gr., Mr. Gibbon). A very fine flower with the form of *Z. rostratum*. Sepals white, tinged with rose-purple; petals rose-purple, with freckling of white showing through the blotches on the outer halves; lip white with purple blotches around the callus.

Odontoglossum × Loochristiense Kimberley.—From W. THOMPSON, Esq., Walton Grange (gr., Mr. W. Stevens). The best of its class. Flowers large, yellow, spotted with red-brown, and slightly tinged with rose on the reverse side.

Odontoglossum × Adriane Lord Roberts, from W. THOMPSON, Esq., Walton Grange. A handsome variety, with cream-white flowers, spotted with purplish-brown.

BOTANICAL CERTIFICATE.

Dendrobium Jerdonianum, from Sir Trevor Lawrence, Bart. (gr., Mr. W. H. White). A highland Indian species, forming a pretty bush-like plant, and bearing orange-coloured flowers.

Dendrobium punctum, from Sir Trevor Lawrence, Bart. Flowers in dense clusters; pale pink.

Restrepia striata, from R. I. MEASURES, Esq., Camberwell (gr., Mr. H. J. Chapman). Flowers yellow, closely marked with dotted lines of reddish-brown.

Fruit and Vegetable Committee.

Present: Phillip Crowley, Esq. (Chairman); and Messrs. Jas. H. Veitch, W. Wilks, E. Shaw Blaker, W. Poupert, M. Gleeson, Geo. Kelf, Alex. Dean, S. Mortimer, G. T. Miles, W. Bates, Geo. Reynolds, Geo. Wythes, H. Balderson, F. Q. Lane, J. Willard, E. Beckett, H. Markham, and Geo. Bunyard.

A commendable collection of Apples was shown by C. P. SERCOLO, Esq., Taplow Hill, Maidenhead (gr., Mr. R. Bullock). There were rather more than a score of varieties, some of which were of remarkable freshness and quality for present date of season. Mention may be made of Cox's Orange Pippin, Blenheim Orange, Waltham Abbey Seedling, Fearn's Pippin, Claygate Pearmain, and Herefordshire Pearmain. The rather rough-looking but distinct-flavoured Braddon Pippin was included in the exhibit, and the dishes were hidden partially with highly-coloured Berberis foliage (Silver Banksian Medal).

Several varieties of Pears were shown, including Josephine de Malines, Bergamotte d'Espere, and Duchesse de Bordeaux, all of them from Mr. J. C. GILBERT, Anemone Nurseries, Dyke Bourne, Lincolnshire. Mr. GILBERT also

showed Apples Barnack Beauty, a great favourite in Kent; and Bramley's Seedling.

From the DUKE OF NORTHUMBERLAND's garden, Syon House, Brentford (gr., Mr. G. Wythes), were shown freely fruited growths of *Vanilla planifolia*. Similar growths have been illustrated in our pages, April 8, 1899, p. 213.

Excellent specimens of "Tender-and-True" Parsnips from Lord ALDENHAM's garden, Aldenham House, Elstree, drew a Cultural Commendation from the Committee. The roots were exceptionally even, smooth, and pale in colour.

Mr. JOHN CROOK, Forie Abbey Gardens, Chard, showed six dishes of Apples, representing the varieties Cox's Orange Pippin, Scarlet Nonpareil, Dumelow's Seedling, Sturmer Pippin, Ribston Pippin, and Loddington Pippin.

Ripe fruits of the common Papaw (*Carica Papaya*), were shown from the gardens of LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton. They were tasted by the Committee, but their flavour was not greatly appreciated. However, a cultural commendation was deservedly given in respect to them.

Award.

Apple "Cabalva."—A fruit of medium or large size, of similar form to that of Blenheim Orange. Deep red upon one side, yellow on the other, and marked upon pale side with numerous dark brown spots. Stem inserted in a very deep and wide basin. Eye apparently closed, set in a ribbed basin also rather deep. It may be of good quality as a late dessert fruit, and certainly will be useful for the kitchen. The fruits, said Mr. A. PERRIGREW, of Cardiff Castle Gardens, who sent them to the Drill Hall, are from a very old tree. It is probably an old local Welsh Apple that deserves to be brought to the front (Award of Merit).

MANCHESTER AND NORTH OF ENGLAND ORCHID.

FEBRUARY 22.—The meeting on the above date was a very successful one, and a magnificent lot of Orchids was exhibited.

G. SHORLAND BALL, Esq., Wilmslow (gr., Mr. Gibbon), sent his beautiful and rare *Zygopetalum Balli*, which was awarded a First-class Certificate last year; also a very good form of *Lælia Jongheana*, which seems to grow well at Wilmslow (Award of Merit).

W. THOMPSON, Esq., Stone (gr., Mr. Stevens), staged a charming group of *Odontoglossums*, excellent in every way, models of good culture, and of such beautiful forms as to satisfy the most fastidious amateur. One of the most distinct was *O. crispum*, var. "Duke of York," a medium-sized form, with incurving segments, densely covered throughout with crimson markings (First-class Certificate). *O. crispum* "The Sirdar" is another beautiful form of quite a distinct type; a medium-sized flower, with an almost entire band of colour drawn around the centre of the flower (Award of Merit). *Odontoglossum asperum grandiflorum*, though perhaps of not such great monetary value as some of the preceding plants, is undoubtedly one of the most handsome and remarkable *Odontoglossums* ever seen; polished mahogany would probably describe its sepals and petals, with here and there a touch of yellow; this plant bearing as it did some sixteen flowers formed a picture not soon forgotten, the plant gained a well-merited First-class Certificate. Other fine plants in this group were *O. crispum* "Madonna," Award of Merit; *O. c.* "Yellow Gem," First-class Certificate; *O. × Wilkeanum* var. *concinnum*, Award of Merit; *O. × excellens* var. *McBeaniana*, Award of Merit; *O. Adriane* var. *Lady Roberts*, Award of Merit; *O. × Loochristiense* "Kimberley," one of the hybrids raised at Stone, and whose flowers expanded on the memorable day on which we received news of Kimberley's relief. A Gold Medal was awarded to Mr. Thompson's group.

T. STATTER, Esq., Whitefield (gr., Mr. Johnson), showed a pretty little *Dendrobium* hybrid between *D. Findlayanum × D. Cassiope*, also the brilliant *Cypripedium Statterianum*.

J. LEEHMAN, Esq., Heaton Mersey (gr., Mr. Edge), staged a fine group, which received a Silver-gilt Medal. Amongst the plants chosen for the inspection of the committee was the lovely *Lælio-Cattleya Bertha Fournier* var. *splendida*, a fine thing between *L. elegans* and *C. aurea*; this plant is one of the most brilliant of the hybrids yet raised, and reflects much credit on the selection of the raiser, M. Maron (the plant received a First-class Certificate unanimously).

Mr. LEEHMAN received Awards of Merit for the following plants:—*Cattleya Trianaei*, "West Bank House" var., C. T. var. *Empress*, C. D. var. *Enfieldensis*, *Lælia anceps* var. *Leemannii*, a very fine form; *Cypripedium × Vipan*, and *C. Rothschildianum × Curtisii*.

S. GRATRIX, Esq., Whalley Range (gr., Mr. McLeod), gained Awards of Merit for *Cattleya Trianaei* "General French," an elegant form, which was greatly admired; for *Cypripedium × Cowleyanum* var. *magnificum*, and for *C. × J. Howes*.

D. B. RAFFART, Esq., Liscard, Cheshire (gr., Mr. Nicholson), received an Award of Merit for *Cattleya Trianaei* var. *Backhouseana*; the markings on the petals of this variety are extraordinary, and lend much character to the flower; they almost represent a small labellum of *Cattleya Trianaei* "Ironed" out. Is this true *Backhouseana*? The same gentleman showed *Cypripedium × Harrisianum* var. *vircescens* (Award of Merit).

T. BAXTER, Esq., Morecambe (gr., Mr. Roberts), received Awards of Merit for *Odontoglossum crispum*, var. *Lady Roberts*, a fine variety with a grand spike of blooms; while the same award was given to a superb form of *O. × Andersonianum* called *Oakfield* var., and which deserves to rank amongst the best forms of this plant.

W. BOLTON, Esq., Wilderspool, Warrington (gr., Mr. Cain), sent a brace of *Cattleya Trianaei*.

R. ASHWORTH, Esq., Ashlands, Newchurch (gr., Mr. PIDSLEY), exhibited a well-grown plant of the pure white *Dendrobium nobile* var. *virginialis*, and received a First-class Certificate. Other plants from the same collection were a fair form of *L. C. × callistoglossa*, and *Odontoglossums Humeanum* and *asperum*.

Mr. J. CYPHER, Cheltenham, exhibited a very nice group of Orchids, which was awarded a Silver Medal, and among which was a very good plant and variety of the old favourite hybrid, *Cypripedium × Morganiae*.

Mr. J. ROBSON, Altrincham, received an Award of Merit for a handsome form of *Cypripedium × Niobe*.

Mr. A. J. KEELING showed *Cypripedium × Courtauldianum*. P. W.

NATIONAL CHRYSANTHEMUM.

FEBRUARY 20.—A meeting of the Executive Committee was held at Carr's Restaurant, Strand, on the above date, Mr. P. Waterer in the Chair.

The main business was the reception of reports from various Committees, that from the Floral Committee was to the effect that a Schedule of points had been drawn up by which new Chrysanthemums would be judged in the future; a maximum of eighteen points representing the ideal standard flower; and the points are divided into form, represented by breadth and depth, colour, size, solidity, and finish; any flower obtaining fifteen points and upwards will be awarded a First-class Certificate of Merit; any obtaining from twelve points up to fifteen, an Award of Merit; and any obtaining from nine up to twelve, a Commendation. In like manner decorative and market varieties had twelve points allotted to them for habit, freedom of bloom, adaptability for cutting, &c. A Schedule will be filled up in the case of any good flower, showing the estimate formed of it by the Committee according to the number of points awarded. The Classification Committee recommended the preparation and publication of a supplemental catalogue during the coming summer, and it was referred to that Committee to prepare the same, with Mr. C. H. Payne as editor. The Schedule Revision brought up their report, showing the alterations and additions made in the Schedule of Prizes; with the sum of £17 odd added. The Group Class has been increased in size, and the President, Sir Edwin Saunders, gives a first prize of £15. Some new members were elected; and the King's Lynn, and Halifax Chrysanthemum Societies were admitted to affiliation.

MISCELLANEOUS SOCIETIES:

Bristol and District Gardeners Mutual Improvement Association.—The fortnightly meeting was held at St. John's Parish Room on Thursday, 22nd ult.; Mr. Chas. Lock presiding over a good attendance of members. The paper for the evening was furnished by Mr. A. Moore-Sara, of Elmalds, Stoke Bishop, on "The pollen-grain and its functions." With the help of a blackboard he made the subject very interesting, tracing the varied notions as to the sexuality of flowers, from the time of Herodotus down to the 17th century; when in 1676 Dr. Grew, in a book on *Plant Anatomy*, laid down in definite terms the law of vegetative impregnation, accepted by botanists to-day, and in a greater or lesser degree understood by all present day gardeners. Dealing in detail with the subject, he described the formation of the pollen, some of the many methods of distribution, and the processes through which it had to pass until fertilisation was complete. A short discussion followed, chiefly on the advisability of forming a Botany Class in connection with the Association.

Reading Gardeners' Mutual Improvement.—"Horticultural Buildings" was the subject of a paper read before the members of the above Association on the 26th ult., by Mr. G. H. Parsons, horticultural builder, Reading; who said that horticultural buildings are quite modern as compared with religious and domestic buildings. Their necessity arose from the bringing home of plants and seeds that would not stand the rigours of our climate. To prolong the season of fruit, flowers, and vegetables, is also another reason for construction. After explaining the action of the rays of light passing through glass at various angles, Mr. Parsons passed on to the consideration of glass and roof angles, sites, forms of houses, heating, staging, pathways, brickwork, timber, ironwork, glass and glazing, painting, &c.

ANSWERS TO CORRESPONDENTS.

ABNORMAL RICHARDIA ETHIOPICA SPATHES: *Thos. Thompson.* These occurrences are common, due probably to more people cultivating this plant, and to the lavish use of manures, which induces great vigour, that finds an outlet in redundant and hose-in-hose spathes.

CARNATION LEAVES WITH PARASITIC FUNGUS THEREON: *W. G. R.* The leaves are affected by the so-called Carnation Rust, *Puccinia Dianthi*. The "teliospores" germinate on the host plant as soon as they are ripe; the germinating threads penetrate the stomata of the leaves, and go through the circle of life again without any change of generation. The cultivator should therefore destroy the affected plants without loss of time by burning, or in the case of slightly affected ones, syringe them with sulphide of potassium 4-oz. to one gallon of hot water.

CYCLAMENS FAILING TO GROW: *E. A. A.* The failure of the plants is due certainly to the improper kind of soil used, which is lacking in porosity, and consists of too large a proportion of loam in relation to the other ingredients. Moreover the loam is lacking in fibre; hence its tendency to become sour. The application of manure at weekly intervals is uncalled for, and has had something to do with the failure of the plants; and lastly, the temperature at night has been too high by 5° at the least; and 70° by day is not always desirable in very dull days in winter.

"FUNGUS" ON LAWN: *W. G. J.* Not a fungus, for it is green. It is an Alga, known as *Nostoc*. It grows in damp places. If on paths, the application of salt will kill it. On a lawn rake it off, and if possible improve the drainage.

LONG-STEMMED ROSES, LA FRANCE: *W. D.* These Roses are chiefly grown at Canterbury. They are by no means difficult to obtain. It is more a question of varieties suitable for the purpose. Mrs. John Laing, General Jacqueminot, Baroness Rothschild, Madame Gabrielle Luizet, Dupuy Jamain, and others, which naturally make long growths before the flowers show themselves. There are two methods of securing such blooms—one is to plant in borders, and cultivate in the ordinary method. As soon as the flowers are over, the lights are gradually removed, and the plants ripened by early autumn, so as to admit of early winter pruning, and re-starting for another crop. These plants produce flowers in February and March. They must be early started in November, and grown on very steadily at the first. Pot-plants are also used, and can be started early or late. The great desideratum is to have thoroughly healthy and well-matured wood to commence upon. The same plants serve year after year, and when once forced and ripened early, are naturally better suited for other occasions, seeing that they have done their main growing and flowering earlier than the ordinary plants. Plants potted up from the open are not suited for such forcing the same season. There is nothing special in their culture. Suitable varieties, and no hesitation in cutting away wood when securing the blooms, are the main features. The plants flower only once.

MUSA ENSETTE: *A. R. P., Nice.* Every species of Musa, on bearing fruit, loses the stem on which the bunch of fruits was produced, its place being taken by a sucker, or young plant, which in most instances is a year or older when the bunch emerges from the crown. The plant therefore does not die, on the contrary it is perpetuated by the sucker or suckers. A root may be dug up and divided into as many pieces as there are suckers, developed or undeveloped.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*W. W.* Chiefly garden hybrids from *Azalea amena* and *A. obtusa*. They may be hardy in the south-western counties. We cannot name the varieties.—*E. F.* A good variety of *Cypripedium villosum* and *Dendrobium Findlayianum*.—*E. M. C.* 1, *Aspidium trifoliatum*; 2, *Cheilanthes elegans*.—*R. F.* *Asclepias curassavica*, and not *Euphorbia jacquiniiflora*, which is a very different and much more tender plant.—*F. C. C.* Miserable scraps, one is *Berberis stenophylla*, the other broader-leaved one is *B. Darwini*.

OPUNTIAS WITH BROWN SPOTS: *A. C.* We take these appearances to be caused by punctures made by the plants' own spines, or those of other plants. If you find that the brown spots become large and spreading, kindly send further specimens.

PELAGONIUM LEAVES WITH PUNCTURES: *X. J. R.* The punctures may be caused by some insect, which might be caught at night by the aid of a lantern. You do not afford us the least scrap of information concerning your method of cultivation, but judging from the weak, drawn cuttings sent with the note, it cannot be quite of the right sort. Cuttings taken from the plants are not likely to be of much service. Afford a more generous mode of cultivation; let the plants enjoy the utmost amount of sunshine, and of fresh air in mild weather; and do not afford an excessive quantity of water to the soil or in the

air of the house, and remember that the zonal *Pelargonium* is not a very tender plant in this country. In parts of Cornwall, and Wales, and in Southern Ireland the plant lives out of doors the whole year.

RAINFALL FOR THE SOUTH: *B. L.* The average has been for the past two years in most parts of the country, and especially in the west, below the normal. We would refer you to the observations on the weather, to be found in every issue of the *Gardeners' Chronicle*.

SHOOTS OF FRUIT TREES INTENDED TO FORM GRAFTING SCIONS: *L. A. W.* It is quite time that these shoots were taken from the trees, laying them in thin lines on a cool border where the sun cannot reach them. They should be buried to two-thirds of their length, and the soil closed firmly about them. Grafting may be done in late March, and as late as the second week in April. The right time depends on the latitude of the place, the further north the later.

"SPOT" ON GRAPES, AND SPRAYING MIXTURES: *C. H.* We would not advise the use of the Bordeaux Mixture before the berries reach the size of Sweet Pea-seeds. As a precaution you should paint the hot-water pipes and walls with lime-wash containing a pint of flowers-of-sulphur to the pailful of wash. The sulphur should, before it is added to the lime, be mixed into a thickish paste, otherwise it will float on the surface, and not be generally distributed throughout the wash. The first dressing would preferably be one of sulphide of potassium, at the rate of half oz. to 1 gallon of warm rain-water. The Bordeaux Mixture: To make the latter dissolve 6 lb. copper sulphate in 1 gallon of hot-water, in an earthenware or wooden vessel; in another vessel slake 3 lb. of fresh lime in 1 gallon of water. Strain the latter, and add 20 gallons of water. Now pour in the dissolved copper-sulphate and mix thoroughly. A safe dilute formula consists of 4 lb. of copper-sulphate, 4 lb. of fresh lime, and 50 gallons of water. This is quite effectual, and is preferable for use on tender plants under glass. No fungicide should be used after the berries are half-grown. We should imagine from what you tell us, the roots of the Vine are in a bad state, and that the soil has got into an unwholesome condition.

THE TWO METHODS OF FRUITING THE PEACH: *J. T.* The "diseased" portion of the unstopped Peach-shoot is the effect, really, of frost acting on immature wood. The spur of Peach-wood covered with bloom would be well-ripened, and not liable to this kind of injury.

TOMATO SEEDLINGS GOING OFF: *Gardener.* The result probably of the crowding of the plants in the seed-pots and too humid an atmosphere. They are much drawn. The obvious cure is to sow thinly, prick off quickly, grow the plants from the first close to the glass, afford air whenever it is safe so to do, and let the surroundings lean to the dry side.

VEGETATION FOR COVERING STEEP BANKS: *A. B. C.* You cannot have better plants for this purpose than *Saxifraga hypnoides*, *S. trifurcata*, and *S. decipiens*. The plants are of low growth, hardy, and evergreen, soon covering the soil; and providing moisture is not very deficient, spread far and wide. The best time to plant is August and September. It is necessary to remove the flower-stalk as soon as season of flowering is past, or the object for which they were planted will be lost.

COMMUNICATIONS RECEIVED.—Dr. BORAVIA.—R. L. C.—A. F.—A. C. F.—H. A. G.—W. B. H.—D. T. F.—R. P. B.—H. H. T.—G. W.—C. T. D.—H. C.—E. C.—J. S.—W. H. W. F. B.—R. J.

DRAWINGS RECEIVED:—G. B. M.

Continued Increase in the Circulation of the
"GARDENERS' CHRONICLE."

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

TREBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS' AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is considered for reference in all the principal libraries.

(For Markets and Weather, see p. xiv.)



THE Gardeners' Chronicle

No. 689.—SATURDAY, MARCH 10, 1900.

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NATURE AND HORTICULTURE.

THERE is much more affinity existing between these than is likely to occur to the thoughtless mind. I am strongly of opinion that the highest efforts of gardening genius, of what may be termed horticultural intellect, have been inspired by the teachings of beneficent Nature. Even in the direction of floral arrangements, the picturesque, effective groupings of plants and flowers, and above all, of ornamental foliage or flowering trees within the ever-delightful garden domain, we have derived from Nature our noblest conceptions. We find that she is always a generous giver; that she is effusive in her vegetative and floral affluence; but though she gives us vast masses of colour, those brilliant revelations (of what can be effected in certain situations by one ineffably luminous hue), are always adequately modified by dense, shadowy masses of enviroing green. Here, then, is a memorable artistic lesson imparted to us by the Creator through the medium of his most tangible and realisable creation, for the formation of an almost ideal garden, which will charm us not less by its brightness, than soothe us by its shade. This was the garden of man's earthly paradise as pictured by Milton, who could feel intensely what he was unable to behold; and the love of peaceful, shadowy scenes, with their tranquillising umbrageousness, which is a memory of Eden, adheres to us still. The brave Champion, one of the fairest of all our woodland flowers,

which not seldom illuminates in winter the desolate waysides wherever the slightest protection from the storm can be obtained, is in summer the central glory of our Scottish glens; but its environment is always of a strongly contrasted character, dark green and purple shades predominating, to give its radiant pictures their adequate influence on the Nature-loving mind. So also with the beautiful wild Hyacinth (*Scilla nutans*), whose effect is so marvellous in the woods in fragrant May, and of which Alexander Smith, in his finest lyrical poem, has so expressively sung:—

"O, fair the lightly-sprinkled waste,
O'er which a laughing shower has raced:
O, fair the April shoots!
O, fair the woods on summer days,
When a blue hyacinthine blaze
Is dreaming round the roots!"

I sometimes think, but perhaps I am too exacting, that if the word "haze" had been instinctively substituted by this gifted singer for the term which ends the penultimate line, the passage I have quoted would have been even more expressive.

Nature does not exhibit her brightest floral possessions or most artistic creations as our great rosarians do, though there are manifest signs of a revolution in this special department of emulous activity. It is rarely that she gives us flowers without foliage, excepting perhaps among the African or Arabian desert sands. But in every region which is adequately watered by the generous rains of heaven, and on which the glorious sunlight shines; where the "parent of day" is not a veritable tyrant, seeking like a certain roaring lion recorded in Revelation, what he may devour, or at any rate, consume; in those blessed regions of profuse vegetation the fairest flowers find amid their romantic surroundings a wealth of gracious shade. In my own garden I have made every provision for this requirement, which is as requisite for our mental and physical natures as it is for the vitality (as well as the adornment through exquisite colorative contrast) of the trees and flowers. We are often recommended by professional cultivators not to plant flowers beneath trees, but I have invariably grown *Violas* in such positions with splendid results; there in the grateful shade they last for years, and blossom abundantly, while many of their number, exposed to the glaring sun, have drooped and died.

In the woods which adorn the northern region of this picturesque parish, the odorous Woodbine and many varieties of the wild Rose grow up the trees to a marvellous elevation, and form, during the period of floral fruition, exceedingly beautiful and striking effects. Such pictures I have endeavoured, not without success, to reproduce in my garden, which seems specially adapted by Nature and art to fulfil the aspirations of the noblest climbing flowers. Therein the lovely Eckford Sweet Peas, the great *Nasturtium*, *Tropæolum speciosum*, and *T. canariense* (as I have indicated in a previous article), blossom with almost tropical luxuriance on venerable trees, often at a height of 15 feet; *Linaria cymbalaria*, with its lilac and white flowers, entirely covers the northern

wall, where it has the close companionship of *Geranium Robertianum*. The other walls of the garden being festooned with *Roses* of aspiring tendencies, among which the most conspicuous are *L'Idéal*, *Madame Pierre Cochet*, *William Allen Richardson*, *Madame Alfred Carrière*, *Bouquet d'Or*, *Turner's brilliant Crimson Rambler*, *Niphetos*, and climbing *Perle des Jardins*. The Tree *Fuchsia* grows and flowers at the head of the garden, as if it breathed the atmosphere of Chili or Peru. This is a native of South America, and always is most gracious on the confines of the sea.

Among the greatest natural adornments of our gardens are the flowering trees; especially the Almond, the Apple, the snow-white Cherry, with its Hawthorn fragrance, and the double-flowering Peach. The horticultural art becomes the reverential inspiration of Nature, when we contemplate the refinement and the glory of these. *David R. Williamson.*

TWO GOOD LONG-KEEPING PEARS.

I HAVE recently seen some good late Pears noticed in the *Gardeners' Chronicle*, but no mention has been made of *Nouvelle Fulvie*, and only a line devoted to *Josephine de Malines*, two of our best winter fruits. *Nouvelle Fulvie* does not excel in all kinds of soil and localities. At Syon the soil is not just of the right sort for fruit-trees, yet this variety succeeds where others fail. Again at Teddington, the late Mr. Blackmore says, in *Hogg's Fruit Manual*, it is not a good Pear. I admit that the fruit is not of handsome form, but that is not of much consequence when its keeping and eating qualities are taken into account.

The variety was raised by M. Grégoire, of Jodoigne, in Belgium, nearly fifty years ago, so that it is not new, and I wonder that with the scarcity of late and good Pears it is not more commonly planted, as even in a light soil the fruits keep well into February. Owing to the heat and drought of the last two seasons, our Pears have not kept so long as usual. This variety is of middle size, in shape pyriform, with the skin of a dark green tint, becoming of a dull yellow hue with faint crimson markings. In sunnier countries than ours it is much more highly coloured. In shape the fruit is rather irregular, and on bushes and pyramids it has not a taking appearance; although the flavour is good, with a flesh very juicy and melting, free of grittiness. The tree is of compact growth at Syon, but in a more loamy soil it is apt to be more irregular. The variety rarely fails to bear a crop, whether as pyramid, bush, or wall-tree, and is not at all a shy bearer grown as a cordon. The fruits come large and shapely on a tree on our west and south walls. The variety does well in the Messrs. Bunyard's Allington Nursery, and with Mr. G. Woodward, Barham Court, Maidstone.

I should note that Mr. Turton, in the *Gardeners' Chronicle*, p. 29, remarked on the value of Pear *Josephine de Malines*, though he only gives its name. The variety is better known than *Nouvelle Fulvie*, and will need but few words from me. The fruit is of medium size, with a yellow rind when ripe; deliciously perfumed, very juicy, and one of the sweetest of Pears, and of rich flavour. The variety does well on the Quince, and though deserving of a place on a wall in the colder parts of the country, it is valuable as a pyramid in the southern and western counties. At Syon the tree grows somewhat straggling, but it crops well when the head is kept open; as a wall tree it bears freely even when young. The fruit is in season from January to May; the variety is a good wall Pear in the north. It was put into commerce in 1830. I cannot say that it is a success as a cordon at Syon. *G. Wythes, Syon House Gardens, Brentford.*

soil to the depth of several feet, and the intense heat and aridity of the air seared and withered up all vegetation. Both months had the highest maximum temperatures of which I have any records; that of July being only fractionally below 80°, and that of August being 81°. The diurnal range was frequently 30° to 40° for many consecutive days. In some cases deciduous trees cast their leaves in August, leaving their branches bare of all semblance of foliage, and the lawns became indistinguishable in colour from the high roads. Under such conditions all summer-flowering plants were, of course, hopelessly handicapped.

The autumn was generally favourable, but we suffered much from artificially-created fogs. The rainfall for the year was 19.98 in. The average maximum 60°; the absolute maximum being 93°, and the absolute minimum 15° (December, 1899). On forty-six days during the year the shade temperature reached 80°, which is fully twice the average number of days on which such high temperatures are annually reached.

We had one exceptional maximum shade-reading of 65° on February 11. The long protracted drought, which had lasted for two and a half years, was broken up early in November by copious rains.

I noticed during October and December that the area afflicted by artificially-made London smoke fogs had extended several miles westward. Previously I had sometimes noticed distinct yellowness in the fogs, and consequent loss of light, but never until the October of 1899 had a genuine dry smoke fog reached out so many miles. In December the same abomination was inflicted upon us again and again. During the past winter (1898-1899) no excessive frost occurred, the lowest temperature, 21°, being in March. Hence I have not to record any losses among the doubtfully hardy plants.

Among the new or rare plants which flowered with me this past year, I may mention a gigantic *Crinum* which came to me under the very good descriptive name of "*campanulatum*." [This is far removed from the *C. campanulatum* of Herbert.] It is an undescribed species allied to *C. latifolium*. *Crinum* *Wimbushii*, another species allied to *C. pauciflorum*, but more floriferous; coming from Kota Kota by Lake Nyassa. *Crinum* *Yemensis*, a good thing, and new I believe to British though not to continental gardens; this shows alliance with *C. brachynema*, and is at least as hardy as *C. Moorei*, if not quite hardy. *Hymenocallis* "*Daphne*," a splendid hybrid raised by Mr. Van Tubergen, of Haarlem. This is distinct from *H. macrostephana*, and is one of the finest forms in the whole genus. *Hymenocallis* *schizostephana*, a new species of which you have already published a description, and of which I am sending you a figure. *Hyline* *Worsleyi*, a new species in a genus hitherto considered monotypic. *Zephyrites elliptica*, a new specimen subgenerically distinct from the Mexican *Zephyranthes macrostiphon*. *Habranthus advenum*, a species common for many years in catalogues, but which appears very difficult to flower in this climate; this September a couple of bulbs flowered in the open. *Hippeastrum organense* and *H. Correiensis*, two interesting epiphytes from the Organ Mountains, highly prized in the days when Mrs. Bury compiled her *Hexandrian Plants*, but long since lost. These flowered freely. *Lycoris cyrtanthiflora*, a new species allied to *L. sanguinea*. *Calliopsyche mirabilis*, this has been known for thirty years, but is still very rare, and is new to my collection. *Brodiaea* (*Triteleia*) *aurea*, a delicately minute species, but of considerable hardiness. After being treated as a hardy plant throughout the winter, it flowered in the open in May. The foliage will withstand 17° of frost without damage.

Among those plant-monstrosities which occur from time to time, and which furnish opportunities for the perpetuation of such divergencies from the type, I may mention during the past year observing a flower of *Iris chinensis* with four falls and four standards; a flower of *Brunsvigia Josephine* with ten segments and ten stamens; and also a flower

of *Agapanthus umbellatus* with twelve segments and stamens, but apparently only one style. This latter, on being self-fertilised, however, produced two distinct fruits, from which it would appear that there must have really been two styles cohering. I have cultivated *Agapanthus umbellatus* for a number of years, but have never succeeded in raising fertile seeds. The so-called seedling forms common on the Continent seem to be seedlings of another species of *Agapanthus*, being hardy, and much dwarfer, and narrower in the leaf; these also seed with me. *Iris tuberosa* must be ranked as hardy; this April its flowers expanded in perfection after a frosty night. *Eucharis Lehmanni* has proved itself to be a "good" species, as it comes true from seed; the seedlings flowered two years from sowing. *Brodiaea* (*Triteleia*) *Sellowiana*, a new species, showing an alliance with *B. uniflora*. This is a single-flowered species of a brilliant chrome-yellow colour, and, if sufficiently hardy, will make a splendid companion for *B. uniflora*.

Among seeds raised for purposes of determination and comparison, I may mention those of *Hymenocallis speciosa*, *Acis autumnalis*, and *Lycoris cyrtanthiflora*. The seeds of this latter plant are not true to the descriptions given of *Lycoris* seeds, so that unless some mistake has arisen in past times it would seem that we have more than one genus included under *Lycoris*.

Many *Amaryllidaceae* are of great value for outside decorative effect during summer and early autumn. Among such I may mention *Crinum Moorei*, which, if given a shady position under big trees, and protected from wind, blooms in perfection and lasts far longer than under glass. Among the *Lycoris* which have been in the open ground for five years, *L. squamigera* again produced over 100 flower-scapes (averaging from five to eight flowers to the scape), and *L. cyrtanthiflora*, eight scapes. This latter species is not, however, suited for outside work, as it is not effective, and the flowers bleach in a single day. *L. aurea* and *L. radiata* both failed to flower. My *Brunsvigia*s were very disappointing last summer, not more than one in eight flowering. I cannot account for this in any way. I certainly think that *Lycoris squamigera* has proved itself to be a good garden plant, at any rate on dry soils. It flowers about the middle of August, and the flowering season lasts fully three weeks. *Amaryllis* flowers directly the *Lycoris* are over, so that a border containing both these bulbs should give nearly two months consecutive display of bloom. *A. Worsleyi*, *Mandeville House*, *Isleworth*, February, 1900.

NOTES ON SOME PHASES IN TOMATO CULTIVATION.

I VENTURE to think I need make but little apology in offering to the readers of the *Gardeners' Chronicle* a few remarks drawn from experience in the cultivation of this fruit, more especially in view of the ever increasing interest taken in its production in this country, with the laudable hope that, ere long, we shall be able to put on the market a sufficient quantity of first-class English fruit adequate to meet all demands, and thus render ourselves independent of the foreign producers, who now send us such vast quantities yearly, lacking alike good appearance, flavour, and wholesomeness.

Few, I imagine, will venture to deny that the present-day Tomato culture in England for market purposes is unsatisfactory. It seems impossible that any uniform practice can be successful if carried out in all soils and districts alike, and yet a follow-my-neighbour method is very much in evidence, which frequently leads to unsatisfactory results. Hard-and-fast rules are of very little value to any grower; and rather than adhere to these, I would advise him to study the nature of the soil and climate of his district, and by tentative experiments attempt to find the best methods by which remunerative crops can be produced.

FIELD CULTIVATION.

An interesting paper appeared in this journal on September 30 last, page 257, on this subject, followed, in subsequent numbers, by comments on the same by various writers. Doubtless such cultivation in England is highly to be desired; at the same time, I do not think writers have, as yet, quite bridged over the difficulties attending it. Would it pay? is the primary question to be asked. To this question I do not hesitate to reply—I do not think it would pay. Some of the correspondents have, I think, clearly and truly pointed out that it is of little use planting in the open other than strong plants out of 5-inch pots. I do not say that the bottom bunches of fruit should be "set," because when this is the case, I have frequently found that such fruit rarely swells to its natural size. Well, at the lowest estimate we have 7,000 plants to the acre, which, of course, entails cost of 7,000 pots, and 7,000 sticks to support the plants in the open. In addition to these drawbacks, there is the cost of the erection of house or frame room for the rearing of the young plants, and the risks attending a wet season and consequent disease. But, to my mind, the cost of labour would be by far the heaviest item of all, and under this head not a word is written by any of the correspondents, although estimates are given of probable returns. Let any advocate of field cultivation calculate the cost of labour required in the cultivation of an acre of out-door Tomatoes, which includes during six months, rearing, affording water, weeding the land, pruning, gathering and packing, tying, &c., and I will be bound to say the results will somewhat surprise him. Profits would doubtless accrue were the estimates of from 5 to 8 lb. per plant reached, but in my humble opinion the lowest figure is much too high to name as that to be obtained over a large area. Individual plants, we all know, in a garden will sometimes yield more than 8 lb. of ripe fruit, but it is a very different matter when the yield of a large area has to be taken into consideration; and I fear that in too many cases estimates are based upon the yield of these carefully cultivated garden plants. Then as to prices: I should consider a grower uncommonly lucky if he could obtain an average of 3d. per lb. for the whole produce of an acre of Tomatoes. My experience teaches me that after deducting carriage, commission, and other expenses, 1d. per lb. would be much nearer the mark.

SMALL HOLDINGS.

Instead of attempting, on any extended scale, the field cultivation of the Tomato, I would rather be inclined to advocate a system of encouragement being held out to cottagers and holders of allotments to cultivate the plant on a scale however individually small. If this were done, and an organised system of buying and forwarding to market established, great benefit would be derived by the populations of those counties of England best suited to the industry, and would, to a great extent, free us from the purchasing of the—in many ways—objectionable produce of foreign countries. I have written the above in the belief that it is vastly easier for the cottager to keep the few plants he grows in health, and induce them to yield a much heavier crop per plant, than it is for the big grower with his tens of thousands.

It has been said that the peasantry of France made the Suez Canal by purchasing shares with money saved from the sale of eggs and other commodities, the produce of their small holdings; and in former years—whatever it may be now—it is well known that all the tea imported into England and other countries from China was produced in the same way. No such system has its counterpart in England, although equally favourable opportunities present themselves—a state of things greatly to be deplored. Tens of thousands of cottage-gardens and small holdings now half cultivated or totally neglected in the Tomato producing counties of England might, by

the cultivation of the plant, be made to yield a revenue alike beneficial to their owners and the country at large.

BEST VARIETIES TO GROW.

I think it is almost futile to advocate any particular variety or varieties, as those well adapted to one class of soil might be worthless, or almost so, when planted on another. I will only add on this head that the much despised "Old Red" is none the worse, on most soils, for being despised. Its appearance may not be liked on the tables of the wealthy, but its "setting" qualities, rich colour, and fine flavour do not suffer on that account, provided always that a good "strain" be cultivated. Each grower, however, must find out for himself by experience which variety best suits his conditions of soil and climate.

FLAVOUR IN TOMATOS.

Notwithstanding all that has been said and written regarding the relative flavour in the different varieties, I do not know if any great difference would exist were they all grown under similar conditions. That various conditions of

ZYGOPETALUM BALLI,

ROLFE, N. SP.

OUR illustration (fig. 47) represents a flower of a remarkable *Zygopetalum*, shown by G. Shorland Ball, Esq., Ashford, Wilmslow (gr., Mr. Gibbon), under the above name, at the meeting of the Royal Horticultural Society, February 27, when it was voted an Award of Merit. No information was given about the plant, and only a single flower was shown; it is, therefore, only possible to guess at the habit of the plant, which is probably of the *Z. rostratum* section. The ground colour of the flower is white, the greater part of the surface of the sepals being tinged with rose-purple. The inner portions of the petals and the area of the lip surrounding the callus are blotched with bright rose-purple. It is a very showy and distinct flower.

RAISING ALPINE PLANTS FROM SEEDS.

THIS subject, which Mr. H. Correvon has introduced in the *Gardeners' Chronicle*, p. 84, is one full of interest to growers of these plants.

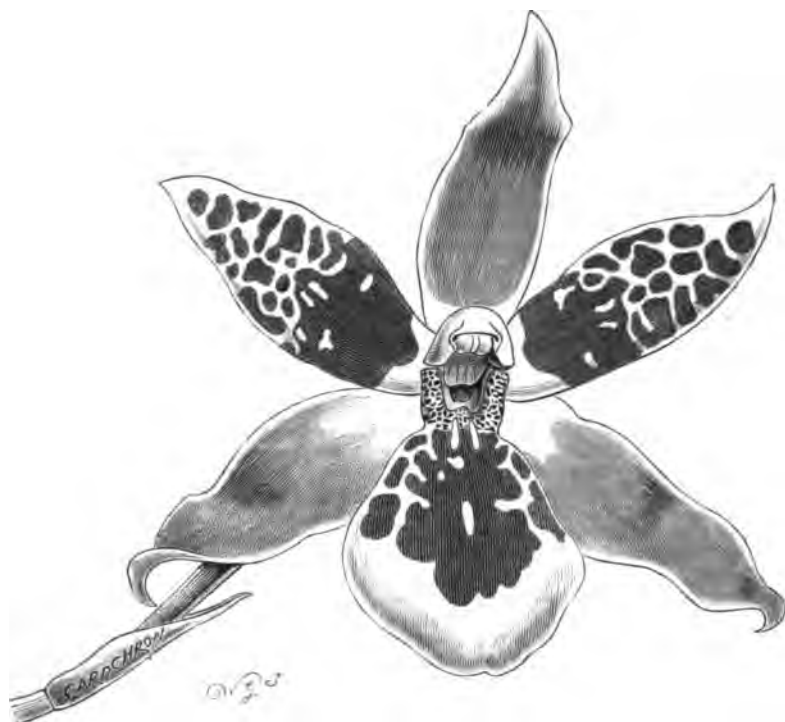


FIG. 47.—*ZYGOPETALUM BALLI*.

culture affects the flavour in the fruit, there can be little doubt; and at least two of the most potent factors in ruining the flavour of the Tomato are the excessive use of unpurified, and for that matter purified manure, and the barbarous habit of denuding the plant to a great extent of its foliage during all stages of its growth. The finest flavoured Tomatos I ever tasted were from stray plants growing by the side of a jungle-path in India. The seeds had, by some means, evidently found their way from some planter's garden, and germinated during the rainy season, but the plants at the time of my gathering the fruits had been without any moisture save dew for two months at least. The fruits were small, but the flavour was superb.

I have often wondered under what conditions of soil the Tomato is found in a wild state. Can it be that its habitat is gritty or stony ground, or rocky mountain slopes? Its long, almost fibreless roots seem, in England, to ramble with delight in rubble of any kind. *J. Lowrie*.

(To be continued.)

Unfortunately for would-be growers in lowland gardens, the information concerning the sowings of fresh seeds, and the results obtained therefrom, do not hold out much greater hope of success than we have experienced in the past. There is just this difficulty of "fresh seeds," i.e., quite new ones, and the knowledge that you really possess them. Particularly would genuinely fresh seeds be highly valued by present-day growers of alpine plants. The rarer species of *Androsaces* for example, which are not only difficult to collect in good condition for transplanting, but much more difficult to get through to their intended destination in a satisfactory condition. Faults of packing, length of time in transit, and delay between the uprooting and ultimate despatch, all play a part in rendering difficulties even more difficult still. Some of these delays may be inevitable, while others certainly might be modified; and it is in these circumstances that good seeds of many alpinists would prove a great boon to many cultivators.

The alpine Pinks, the dwarfed tufted species,

as, for instance, *D. neglectus*, are so desirable that yard-wide patches on the rockery would be welcome; yet such masses are never seen in gardens. Seed of these Pinks, in common with many members of the *Caryophyllæ*, lose none of their fertility by being kept for a year under cool uniform conditions, even in ordinary paper packets; and it is to be deplored that good vegetative seeds are not forthcoming in greater quantity, particularly as the plants, the older tufts especially, do not lend themselves kindly to digging up and transplantation. Some failures of plants to grow are the direct outcome of sending the plants late in the year, when there is little hope of new roots being made, and of the plant becoming established. The same plants arriving in this country in August, or early in September, would have better chances of surviving. Broadly speaking, *Crucifera*, *Compositæ*, *Umbellifera*, and *Leguminosæ* plants offer but few difficulties in the matter of seeds and plant-raising from seeds, not a few of the plants seedling quite freely in British gardens. It is a different matter with *Primulas*, *Androsaces*, *Anemones*, &c., the last-named of these in not a few species or their varieties, appearing rapidly to lose their powers of germinating. This is so fully recognised in the commoner garden kinds, as *A. coronaria*, &c., that a distinct recommendation to "sow as soon as ripe," accompanies any reference to raising the plants from seeds. In the case of *A. alpina* and its sulphur form, the failures are greater than the successes, so far as raising plants from imported seeds is concerned. Home-saved seeds germinate well and freely, and each year this important fact is more recognised.

In the case of *Primulas*, I have had exceptions from the rule concerning fresh seeds. The experience was quite new to me at the time, and I had kept the seeds, which were originally of my own saving, upwards of six years, in an ordinary paper packet, but in a place where atmospheric conditions were fairly uniform. Not expecting the results that followed, I put seed into a 48-pot that would have been enough to have sown half-a-dozen pots 6 inches across. In three weeks from the time of sowing, several hundreds of young plants appeared. *Cyclamen* seed, which I kept for 11 or 12 years, I am not quite sure which, germinated in the proportion of 90 per cent. in just the usual length of time that new seeds require, viz., six weeks. On the other hand, seeds of *Anthericum*, taken from bursting capsules, and sown at once by me, did not germinate for two years, some of the same crop, sown later by some months, germinating thickly at the same time.

Snow covering for seeds is a thing usually out of the reach of those in English lowland gardens. Doubtless, such a perfectly protective covering is required by many alpinists, not merely as a covering, but as affording moisture. It is probable that the uniform degree of moisture afforded by snow, and its long continuance, assisted those *Gentians* and *Primulas* which Mr. Correvon asserts "all germinated at one time." At much lower levels, and without the snow, it is not easy to imitate the uniformly moist state without creating a moss-covered surface. The only thing I know of, and I have many times tried it with fair success, is cocoa-nut fibre. This material retains moisture, and it may be moistened from below without producing the bad results, e.g., sourness of soil, &c., that follow a similar practice when soil is so moistened. In the case of very minute and choice seeds, I favour the following as a means of retaining uniformity of moisture:—Let a 5-inch pot be placed inside an 8-inch one, so low that the smaller pot is 1 inch below the larger one, to allow of a sheet of glass or slate being put over the top; then let the intervening space be filled with cocoa-nut fibre refuse or fine coal-ashes, and the inner pot for the seeds, filled to the extent of one-third with crocks, and the remainder with the cocoa-nut fibre refuse, made firm by ramming it with another pot. By plugging the hole in the larger pot with cement, a water-tight condition is secured, the space between

the two pots to be afterwards retained for supplying moisture. A little watchfulness will keep this to about the height of the crooks, which will afford all the moisture necessary. Seeds that are but lightly covered, or not covered at all, require much care, and much loss is the result of careless or indifferent watering overhead, and not a little by over dryness, particularly when the sides of the pots are exposed to external conditions. On the other hand, in view of the long season required by some seeds to germinate, and the waste of time when failure ensues, it is quite worth while to call in the aid of the microscope to decide, if possible, the fertility of the seeds. This is most helpful in the case of purchased seeds, and those possessing even a small knowledge of the varying characteristics of such seeds will find it of much service. *H. Jenkins, Hampton Hill.*

BOOK NOTICE.

THE BOTANISTS OF PHILADELPHIA AND THEIR WORK. By John W. Harshberger, Ph.D. (Philadelphia, 1899.)

THE first thing that strikes the reader who has only a very general acquaintance with American botany is the large number of devotees of the *amabilis scientia* here enumerated. It must be remembered, however, that Philadelphia, for the purposes of this volume, comprises a radius of 60 miles from the centre of the city, and that the list begins with James Logan (1699), and comprises records of all those now living. It is difficult to review a book of so varied a character as this, but we may say that the reader interested in horticulture or botany will highly appreciate the details here given of the early history of botany in the United States, and of the various gardens and other institutions which have from time to time been established.

The biographical details relating to the botanists will be read with the greatest interest, though the qualifications for entry of some seem to be rather meagre.

The materials here afforded for the gradual evolution of a new national type are valuable. One gentleman, for instance, born in Philadelphia, comes of German ancestry on the father's side; whilst on the mother's side—Scotch, Irish, English, and Sclavic elements, have intervened. Many others, on the contrary, remained Britons though they have crossed the sea, and technically adopted another nationality.

One of the most interesting biographical sketches is that of our old correspondent, Prof. Meehan:—"He was born at Potter's Bar in 1826, and was at one time an alumnus of the Royal Gardens, Kew. It is claimed for him that, when about thirteen years of age, he succeeded in hybridising (cross-breeding) the Fuchsia for the first time, producing a race which he named St. Clair. Mr. Meehan emigrated in 1848, and from that time to this has poured forth an uninterrupted series of interesting observations, which it is to be hoped he may be able to collect and co-ordinate. As a citizen of Philadelphia, Mr. Meehan has also been a most valuable worker. Many improvements, such as the establishment of numerous small parks (some of historical interest), being due to his energy. At the same time he has built up a nursery at Germantown, of which it is said in no other place are American trees and shrubs raised in such quantities.

These few particulars, which are all that our limitations allow us to give, will show what a valuable contribution to the botanical history of the district Dr. Harshberger has made. His book is indispensable to those who want to refer to the life-histories of the botanists, and to gain an insight into the numerous botanical establishments of the State, past and present.

THE WEEK'S WORK.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener, Stoke Edith Park, Hereford.

Orchards.—When the trees in orchards are grown in the form of bushes and pyramids, any pruning that is found necessary should be carried out upon the same lines as those adopted in the pruning of trees in the garden. If space will admit (and an allowance should always be made for it when planting), the branches should be allowed to extend outwardly as well as in an upward direction, so that ultimately the crowns will be spread widely. To this end, the points of the main branches need only to be tipped, until such time as the trees encroach upon each other. When that should occur, the approaching branches must be more severely cut back. Pears and Apples cultivated in this manner produce an abundance of fine, clean fruits, if crowding of the main branches be avoided. Bushes, &c., which are crowded in regard to the inner branches of the crowns should have these reduced in number, in order to let light into the centre. In the case of Plums, the wood may be left somewhat more thickly, bullfinches and tomatoes, &c., usually devour the flower-buds largely when the trees are situated in a quiet orchard. Orchards are not now so often planted with standard trees in the vicinity of the kitchen as was formerly the case, bushes and pyramids having superseded them. Where, however, orchards of standards exist, the trees will need but a cursory examination if they are annually accorded proper attention; but if neglected, they will require a thorough and careful pruning. There is a tendency, now that gardeners are taking greater interest in hardy fruit-culture, to prune too much, with the result that the fruit crop is greatly reduced in quantity, and the health of the trees injured. The granting of Certificates by the Hereford County Council to pruners who can prove to the satisfaction of a qualified examiner, by practical demonstration, that they are competent, is a step in the right direction, and only such men should be employed by those requiring the services of a tree-pruner. At present the supply is not equal to the demand, but this is a matter that will be remedied in the course of time. Other counties in which fruit is largely grown would do well to take a hint. The heads of neglected trees should be carefully thinned out, and crossing and interlacing branches removed; but the removal of large limbs should, if possible, be avoided. When such amputation is inevitable, let the wounds be painted over of a lead colour as soon as dry. Neglected trees frequently become infested with injurious insects, and with moss and lichens; and in some parts Mistletoe is often allowed to sap the energies of the trees unduly. This parasite can soon be destroyed by cutting out every growth seen. The best insecticide is caustic soda wash, previously mentioned, applied by means of an ordinary garden engine and a length of indiarubber tubing, fitted with a sprayer, so as to reach the topmost branches of the trees. This kind of work is most effectually carried out on a calm day. Another good remedy to use against lichen and insects is to dust the trees when damp with fresh lime. If the land is impoverished let a dressing of farmyard or of artificial manure, be placed on the area in which are the roots, and lightly dig the land, taking care to chop up the turf in the case of orchards under grass.

Plums and Damsons are likewise the better for a periodical thinning of the branches; young standards not being overlooked. All the whip-like growths should be shortened back, these generally coming to grief when fruit-laden if left at full length. In orchards under turf the latter should be dug up for a distance of not less than 3 feet from the stems.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain Holford, Westonbirt, Tetbury, Gloucestershire.

Asparagus.—In making a new plantation, a situation well open to the sun and not too much exposed to the wind should be selected for its site. The land should be drained with pipe or rubble drains, trenches dug out as for Celery, and a thick layer of farmyard-manure placed at the bottom, and the soil returned to the trench. Soil of a very stiff nature should be made suitable by adding sand and

road-scrappings to the staple, &c., and be left exposed to the weather till the beginning of the month of April, and after being scuffed, should be made level and well trodden regularly all over, in readiness for planting. Two-year-old seedlings of either the Giant, Connover's Colossal, and Argenteuil should be procured and placed a distance of 2 feet apart, the roots spread out horizontally and regularly, and then covered with sandy loam of good quality, and in such a manner that the crowns may be brought about 3 inches under the surface. As Asparagus-roots are injured by exposure to the air, the plants should be transferred from one situation to another without needless loss of time. Good heads will be obtained if none is taken till the fourth year. Many gardeners adhere to the older method of cultivating this plant in beds of not less than 4 feet wide, with alleys 2 feet wide running between. The produce grown in this manner is of middling size, the edible part greener, and flavour more delicate than that grown in any other manner. In preparing such beds, the soil should be dug out 3 feet deep, some faggots or brushwood placed at the bottom, and well decayed manure to the depth of 2 feet placed thereon, and the whole covered 9 inches deep with lightish soil. The roots may then be planted as previously advised, the beds when finished being about 6 inches above the alleys, into which rain and snow water may drain away from the beds, and thus render them warmer than would otherwise be the case.

Peas.—Where warm borders exist, seeds of Marrowfat varieties, as Chelsea Gem, William Hurst, Gradus, and Sutton's Little Marvel, may be sown in drills, 2 to 3 feet apart. Let the sowings be made moderately thick, and the drills about 2 inches deep, the early sown seeds being liable to rot if buried deeper. In order to preserve the seed from the depredations of mice, roll it in dry red lead. Against sparrows and pigeons use "figure-of-4 traps" or wire guards. As soon as the plants are visible, draw a little earth up to them, making the moulding higher as the plants get taller; and when 3 to 4 inches high, put small bushy sticks to them, so as to afford the haulm support.

Broad Beans.—The plants that have been raised in boxes under glass, will now be fit for transplanting in the open. Take them out without injuring the roots, and plant them in drills drawn 5 feet apart, placing each plant 6 inches apart, and if the plants have been properly hardened off, they will need no sort of protection. This year they need not be afforded water to settle the soil about them. Seed may also be sown in warm sites, putting in a few extra seeds to make up any vacancies that may occur.

Cauliflowers.—All plants which have been wintered in cold frames, should have the fullest exposure, and in about three weeks time they may be planted on a border facing west, or one at any rate that is sheltered from the north and east winds. It is preferable to plant in deepish drills drawn about 15 inches apart. After planting, apply fresh soot to the land and over the leaves. Lime may also be used against birds and slugs.

Vegetable Roots.—Carrot or Parsnip-crops should be lifted before they start into growth, and stacked in small heaps, crowns pointing outwards, sand being placed between the layers. If the place they are stacked in is cool and dry, the roots will be available for several weeks. Turnips in heaps or buries should be inspected, and all those which are found to be started into growth may be removed, and heeled-in in some open spot for the production of tops. The rest of the Celery-crop may also be lifted, and heeled-in close together on the north side of a wall.

PLANTS UNDER GLASS.

By T. EDWARDS, Foreman, Royal Plant Gardens, Frogmore.

Eranthemum pulchellum.—The deep blue-coloured flowers of this old favourite stove plant always attract attention at this season of the year, there being so few flowers of so pure a blue. If a plant be well grown, it is astonishing for how long a period of time the flowers are produced, although a single flower fades in a day or two. All faded blossoms should be removed at short intervals. When a plant is past flowering it should be cut over, new shoots taken as cuttings when these are 3 or 4 inches in length, inserting them singly in small 60's, and rooting them in bottom-heat of 80°. When a

cutting is well-rooted, pinch out the point, and allow the plant to remain in the same pot until it breaks; by this plan, every bud from the pot upwards will grow, and a quite bushy plant will be secured. In repotting from the cutting stage, use 6-inch pots, and as a potting-compost chiefly strong loam. In the summer season the plants should be grown in pits, with slight shade in sunny weather, and any very strong shoots should be stopped. In October the plants should be removed to warmer quarters; in the flowering season mild liquid-manure frequently afforded is beneficial.

Euphorbia Jacquiniaeflora.—Continue to propagate this plant as fast as strong shoots fit for making cuttings can be obtained. If the stock of the plant is short, the old stems may be cut into pieces 2 or 3 inches in length and utilised; but cuttings having a heel of older wood make the better plants. The cuttings should be inserted singly in small pots (or thimbles) filled with peaty soil, covering the top with silver-sand, and plunging in brisk bottom-heat; or six or eight may be put into a 48-pot, and not divided when repotted. The cuttings should not be allowed to flag or damp off.

Gardenias in bud and flower will require the application of liquid-manure, or a light top-dressing of artificial manure mixed with soil; afterwards copiously affording the plants tepid water. Let the flower-buds and shoots be thinned if these are too abundant.

Zonal Pelargoniums.—The improvement in recent years, brought about by numbers of raisers, has made these varieties of the Pelargonium quite a feature of indoor decoration. For winter-flowering, the plants require special preparation, and to be only grown for one season. Plants which have been kept rather dry at the root will now furnish firm shoots very suitable for making cuttings, which, when made, should be put singly into small pots filled with sandy loam, and placed in a temperature of 55° to 60°, in a light position, fully exposed to the sun. When rooted, remove the cuttings to cold pits, keep close to the glass, and remove the sashes entirely during favourable weather. The cuttings should be allowed to become quite pot-bound, and the wood hard, before potting them in the pots in which they will bloom, which should be performed about the middle of the month of May. Remarks as to summer treatment will appear later.

FRUITS UNDER GLASS.

By J. ROBERTS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Cherries.—With such low temperatures as have prevailed, and the almost complete absence of sunshine, rather more than the usual amount of firing will be needed to bring these trees steadily along. In houses where the flower-stalks are extending, let air be freely afforded on all favourable occasions by the day, and a small amount at the top of the houses during the night, in order to give strength to the flowers. Water should be cautiously afforded, a steady degree of moisture in the soil being aimed at from the present time until the blossoms are set. A slight mulch a few inches thick, if placed over the borders, will be an advantage, by reducing the need of frequent applications of water. Such trees as are opening their flowers should have the pollen distributed daily by means of a soft brush.

Pines.—The work of potting, re-arranging plants, and the provision of a steady bottom heat for the growing season, are the most important operations of the year in the culture of the Pine-apple, and every detail should be carried out with the greatest care. Carefully crock a sufficient quantity of 12-inch pots for fruiters, and 8-inch ones for succession plants, and then advantage may be taken of the first mild day to carry out the work. Where the bottom heat will be supplied by tan and leaves, these should be made in fit condition for use; and a bed at least 5 feet deep provided to maintain a steady heat for several months. If hot-water be used for bottom heat, there will be much less labour, and only sufficient material in which to plunge the pots will be needed: the soil at potting time should be moderately dry, so that it may be rammed firmly around the balls without becoming in the least degree pasty. The soil should be of the best fibrous loam of a light nature, from which the finer portions have been removed. Add to this

some bone-meal and a little soot, and a sprinkling of fine charcoal. Each plant must be given the pot-room it needs. If the leaves are broad and brittle, showing sturdy health, and the roots light-coloured and healthy, a good shift may safely be given at this season. Repot all the strongest succession plants first, and place them in proper height and order for replunging in the beds. Follow on with the smaller and later successions, and arrange them in their proper quarters as speedily as possible. Plants in fruit or showing fruit may be benefited by removing a few of the older leaves from their base, and giving them a good top-dressing of fibrous loam and horse droppings. The droppings should be passed through a coarse sieve, and be well blended with the loam. The bottom-heat must be closely watched for a time, and if there is a tendency to excessive heat, the pots should be gently swayed to allow it to escape. A heat of 80° to 85° at the roots, and a top-heat of 70° at night and 80° by day, with sun-heat, will suit the fruiting plants, while 10° lower all round will be sufficient for successions. Water must be applied very carefully, for anything approaching a sodden condition at the roots would be most injurious. Spray the plants lightly with the syringe on fine sunny afternoons.

Strawberries.—High quality and flavour are best obtained by placing the plants in a well-ventilated position in a moderately high temperature, and an atmosphere not overloaded with moisture, and by affording water moderately at the roots. In the case of succession plants syringe them freely, to check red-spider, and on no account allow them to become dry at the roots. Plants passing out of flower should have some of the setting fruits removed without delay, and they will need to be fed at every watering with clear liquid-manure up to within a week of the ripening stage. Later fruiting varieties—Leader and British Queen—may now be put into late vineries and Peach-houses about to be closed; and if frames are plentiful, the whole stock may be started gently, and they will thus be ready to fill vacancies that may occur in the houses.

THE FLOWER GARDEN.

By J. BENBOW, Gardener to the Earl of Ilchester, Abbotbury Castle, Dorset.

Pelargoniums that have been potted recently, and now show signs of fresh growth, may have the leading shoots stopped in order to induce a branching habit. In common with all bedding plants, Pelargoniums should now be given ventilation on all possible occasions.

Hardy Annuals. A sowing of these may now be made on prepared ground in the front of herbaceous borders, and in patches at suitable spots in shrubberies, the seeds being sown when the soil can be worked easily. When the seeds have been sown, some finely sifted soil may be used for covering them. Very small seed should be merely covered, and the soil pressed gently. Larger ones, as those of Lupinus and Poppies, may be sown deeper. To secure a succession of bloom, sowings may be made each month until midsummer.

A Selection of Dwarf Hardy Annuals.—The following species may be sown in limited space in the herbaceous border, or in separate beds in the flower garden; or about the mansion:—Adonis, Acrocliniun, Asperula oerulea, Bartonia aurea, Callirhoe species, C. Loreri, Candytuft species, Silenes armeria and pendula, Clarkia integrifolia and varieties, Collinsia, Dianthus sinensis and D. Heddewegi, Eschscholtzia (new strain), Eutoca viscidula, Ipomopsis, Godetia, Kaulfussia, Oxyura Chrysanthemoides, Leptosiphon, Limnanthes Douglasii, Linaria tristis, Platystemon californicus, Sanvitalia procumbens, Schizopetalon Walkeri, Whitlavia grandiflora, Xeranthemum various, and Mignonette. All of the above should be given positions where they will receive direct sunshine during a portion of the day. Mignonette succeeds best on virgin soil; failing this, a good proportion of crushed mortar-rubble mixed thoroughly in the soil will accelerate its growth.

Half-hardy Annuals.—Prepare hot-beds for the sowing of seeds of Lobelia, Pyrethrum, Golden Feather, Celosia cristata and C. pyramidalis, Jacobaeas, Phlox, Zinnias, Petunias, Perilla nankinensis, Antirrhinums, Stocks Intermediate and East Lothian. The seeds may be sown in large boxes, or in rows close to the glass in frames. Such plants as Lobelia and Pyrethrum should be

given space that will admit of their making growth. It is best, therefore, to sow thinly, so as to obtain plants large enough to be handled. As Stocks and similar plants become large enough to prick out, they should be placed in a cooler frame. Large seeds, as those of Ricinus, Datura cornucopiae, &c., should be sown singly in small pots.

General Remarks.—Specimen Agaves, Chamaerops, Musa (Bananas), Bamboos, &c., that will be used on terraces, should be overhauled. The leaves may need to be sponged, and the tubs require to be repainted. If any of the tubs are rotten, the plants may be put into new ones by means of a tripod and winch used overhead, rollers being used beneath the heaviest specimens, and a screw-jack used in lifting the ball. If the plants do not require a larger tub, the measurement of the new ones should be made as exact as possible. Any space then occurring when the plants have been placed in them may be filled in with very fine earth.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen, S.W.

Saccolabiums.—With few exceptions these plants love heat, and succeed under similar treatment to that recommended in my "Calendar," last week, for Aerides and Vandas. In dealing with them individually, however, there are a few minor, yet essential points to be considered. They may be divided into two classes, viz., those having thick leathery leaves, such as S. guttatum, S. Blumei, S. ampullaceum, S. curvifolium, S. giganteum, S. Hendersonianum, S. praeorsum, &c.; and those with thin leaves, as for example S. calceolares, S. bellinum, and S. bigibbum. Those of the first group are evidently intended by Nature to withstand severe drought, and consequently under cultivation they should only be afforded a limited supply of water when root action is not proceeding. Abundance of atmospheric moisture during the growing period is desirable, but at other times any excess is apt to cause the leaves to fall away. In houses where an uniform degree of humidity is maintained during the winter, no actual water should be afforded the plants for weeks at a time, if the leaves do not show signs of shrivelling. With species of the second group require a moderately moist base at all times, though during dull moist weather, less harm will result from dryness at the root than from a superabundance of moisture. Remoisting and other such work may now be done.

Angraecums are seldom represented in collections, except by A. sesquipedale, and one or two others. They may all now be afforded fresh sphagnum-moss, and, where practicable, clean drainage. The species named above, with A. virens and A. eburneum, being large and strong growing plants, should be grown in pots, but others thrive best grown in baskets or pans and suspended; and excepting A. falcatum, which grows best in the Cattleya-house, they all require an East Indian-house temperature. The essential points in their cultivation are that they require abundance of moisture at the root and in the atmosphere, rather dense shade, and pure air; but air must not be admitted in a manner to cause cold draughts to impinge on the foliage. Large and frequent supplies of water being essential, the drainage and sphagnum-moss should be such that water will soon pass away or evaporate. During the winter months the sphagnum-moss may become moderately dry before being again wetted.

Ventilation and temperatures.—Dry cold winds are generally prevalent at this season, and in conjunction with the increased solar heat, they are very trying to the plants. The disparity between the outside temperature and that desired inside, compels the employment of a large amount of fire-heat, and this increases the aridity of the inside atmosphere. In mitigation of this undesirable condition, air should be admitted very sparingly, and shading employed during the brightest portions of the day. To maintain atmospheric moisture, frequent damping of surfaces will be needed, though, as I have before stated in these columns, it is not wise to keep wetting those parts of the floor-surfaces where it is soon dissipated. Where there occur unusual climatic conditions, a slight increase of the night as well as the day temperatures should now be given in the warmer houses. The desired degree should, however, be determined by the prevailing local conditions.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, MAR. 13 { Royal Horticultural Society's Com-
mittee, Meeting.
THURSDAY, MAR. 15—Linnean Society, Meeting.

SALES.

MONDAY, MARCH 12.—Roses, Fruit-trees, Greenhouse Plants, Hardy Perennials, &c., at Protheroe & Morris' Rooms.
WEDNESDAY, MARCH 14.—Japanese Lilies, Ornamental and Decorative Plants, 500 Azaleas, Begonias, Herbaceous Plants, &c., at Protheroe & Morris' Rooms.
FRIDAY, MARCH 16.—Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—42° 3'.

ACTUAL TEMPERATURES:—

LONDON.—March 7 (6 P.M.): Max. 44°; Min. 36°.
Dull; cold wind.

PROVINCES.—March 7 (6 P.M.): Max. 45°, S.W. Ireland;
Min., 28°, S.W. coast.

It is of the utmost importance at the present juncture that the Council of the Royal Horticultural Society should make the Fellows of the Society conversant with the details of their proposed scheme, to which we alluded last week. At present we know nothing beyond this, that in the annual report allusion was made to the proposals made for celebrating the centenary of the Society in March, 1904. After considering various proposals, the Council, we are told "have decided to recommend the acquisition of a new garden." [The italics are our own.] According to the report of the proceedings of the meeting, the President repeated this statement, but in place of the words decided to recommend, he is reported to have said that the "Council has decided . . . to celebrate that event (the centenary) by the purchase of a new Chiswick, a new experimental garden in a rural district that shall take the place of Chiswick, and probably by the establishment there of a horticultural college, and a thoroughly efficient method of giving theoretical and practical horticultural education." But the President had no further information to give the meeting. Negotiations, he said, were then in progress, and at that time the Council was not disposed to divulge how far these have progressed. This was all that was said.

We protest most earnestly against the view taken that the adoption of the report of necessity carries with it acquiescence in the details of a scheme which were not, and have not been up till now, laid before the Fellows. How can the Fellows acquiesce in anything which is unknown to them?

We have in these columns so strongly advocated the promotion of education, and the advancement of research as essentials in the promotion of horticulture, that we are not likely to dissent from the general principles that it is desirable to have an experimental garden, and

that one duty of the Society is to promote the education of young gardeners, and to advance both the theory and the practice of horticulture.

A new experimental garden in lieu of Chiswick may or may not be desirable. Out-door cultivation near London becomes increasingly difficult by reason of fog and smoke, but the soil of Chiswick is no more irremediably exhausted than it is in the neighbouring market-gardens.

The cost of the establishment, it is true, is disproportionate to the results obtained. A large part of the funds of the Society and much of the energy and labour of the officials is thrown away in the cultivation, and specially in the distribution of plants to the Fellows. These plants are mostly of little or no horticultural interest, and might individually be purchased for a shilling or less at any nursery.

The big vinery also can only be looked upon as a white elephant. Its removal would not diminish the utility of the gardens. It is costly to maintain, and any educational value it may have might be obtained at much less cost.

It is still possible to do useful work at Chiswick, especially under glass. A few acres of land in some fairly accessible place in the country would suffice for the trials of vegetables or hardy flowers. Such work as this might be done at comparatively little cost. Not so with the establishment of a Horticultural College. This arouses our gravest apprehensions. Some of the still active members of the Society have seen the Society brought to the very brink of ruin twice during the last half century. One of the finest libraries of its kind in existence had to be disposed of, herbaria were sold, models of fruit and other valued possessions were dispersed. Later on, within the recollection of many of us, the Chiswick Garden was reduced to the comparatively small area it now occupies. The collections of trees, and shrubs and fruit trees of historic interest, were destroyed.

The state of affairs at, and preceding the migration from South Kensington can only be looked back upon with feelings of abasement and humiliation.

The Society is now flourishing, because it has been well directed, and minds its own business. To embark on such projects as have been only outlined, seems once more to court disaster. Perhaps when we are told how it is going to be done, these forebodings may give place to feelings of another kind. We trust it may be so.

In any case is it an unheard of thing to commit the Fellows to a course of action fraught with such all important consequences, without affording them any explanation beyond the baldest hints. It may not have been judicious to divulge more when the negotiations were pending, but when they are completed it is essential that the Fellows should have the opportunity of considering them before a contract is signed, and we have too good an opinion of the Council to suppose that they will not see the wisdom and propriety of taking such a step.

MISS ORMEROD.—The University of Edinburgh has, says *Nature*, decided to confer the honorary degree of Doctor of Laws, in recognition of her services to entomology.

LINNEAN SOCIETY.—On the occasion of the evening meeting, Thursday, March 15, 1900, at 8 P.M., the following papers will be read:—I. "Report on the Botanical Results of an Expedition to the Mt. Roraima in British Guiana," undertaken by Messrs. F. V. McCONNELL and J. J. QUILCH. By Mr. W. Botting Hemsley, F.R.S., F.L.S., and

others.—II. "Bryosae from Franz Josef Land," collected by the JACKSON-HARMSWORTH Expedition, 1896-97. By Mr. A. W. WATERS, F.L.S., &c.

APPOINTMENTS FROM KEW.—We learn that an extraordinary demand for trained gardeners for positions of importance has been experienced at Kew within the last year or so. In addition to changes of situation which have occurred in the ordinary way, nineteen appointments have been filled by the authorities. Amongst these are nursery-foremen, head gardeners, assistants in the Royal Botanic Gardens, Calcutta (N. GILL and W. F. GREEK); superintendent, Agri-Hort. Society, Madras (B. CAVANAUGH); superintendent, Parks and Gardens, Shanghai (A. ARTHUR); Curator, Botanic Station, Accra (W. BROWN); Agricultural Instructors for the West Indies (A. J. JORDAN and M. McNIEL); Curator, Botanic Gardens, Antigua (W. N. SANDS); Assistant Superintendent, Botanic Gardens, Trinidad (W. LESLIE). These appointments have all been filled from the improver-gardeners employed at Kew, i.e., young men who after five years training in good private gardens or nurseries enter Kew for a two years' course.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Floral and Fruit Committees of the Royal Horticultural Society will be held on Tuesday, March 13, in the Drill Hall, James Street, Westminster, from 1 to 4 P.M. On this occasion a lecture on "The Evolution of Plants, illustrated by various garden strains coming true from Seed," will be given at 3 o'clock, by Mr. IRWIN LYNCH, of the Botanic Garden, Cambridge.

BOTANICAL CONGRESS.—In connection with the Paris Exhibition, a botanical congress will be held from October 1 to 10. Members of the congress will pay a subscription of twenty francs, which will cover the expenses of printing the report. The president is M. PRILLIEUX; the secretaries are MM. GUÉRIN and LUTZ.

"NATAL PLANTS."—It is highly satisfactory at this time to receive from Natal the second part of *Natal Plants*. This consists of a series of quarto lithographs, with accompanying descriptions, from Mr. MEDLEY WOOD and Mr. MAURICE EVANS. In the present number we find various plants of garden interest, such as *Cyrtanthus Mackenani*, t. 51; *Leonotis leonurus*, t. 53; *Hemantthus natalensis*, t. 58.

GARDENERS' CHARITY GUILD.—The annual smoking concert on behalf of the funds of the Gardeners' Royal Benevolent Institution will take place on March 14, at the Great Hall, Cannon Street Hotel, at 7.30 P.M.; chairman, N. SHERWOOD, Esq.; secretary, THOMAS SWALES, Esq., 5 and 6, Clement's Inn, Strand. "The entertainment will take the form of a cigarette concert, in order that ladies may be invited."

ROYAL GARDENERS' ORPHAN FUND.—At a meeting of the committee of this Fund held on the 2nd inst., Mr. H. B. MAY, Dyson's Lane Nursery, Upper Edmonton, was unanimously elected chairman, in succession to Mr. WM. MARSHALL.

AMERICAN FLORIST COMPANY'S DIRECTORY FOR 1900.—In addition to the usual fully corrected and revised lists of florists, seedsmen, nurserymen, parks, cemeteries, botanical gardens, societies, &c., issued by the American Florist Company, 324, Dearborn Street, Chicago, this year's edition of this Directory, which is now ready, contains lists of all the leading gardeners, horticulturists, landscape architects, &c., in the United States and Canada. This book will enable traders on this side to reach the best purchasing classes in North America. The price, post-paid, is 2 dols.

RUSSIAN FRUIT.—Mr. P. Stcherbina, horticulturist, of Simpheropol, Crimea, Russia, has sent us some elaborate and beautifully prepared tables, showing the qualities of the best sorts of Cherries, Plums, Apricots, and Peaches, as observed during eighteen years. The first column contains the

name of the variety, then come eleven columns showing the degree of hardihood; 2, the vigour of the tree; 3, its fertility; 4, its size; 5, its quality; 6, its firmness; 7, its market value. To each of these an allotted number of points is assigned, and these numbers are added together in a column of totals. In addition the time or season in which the fruit is available, its form and colour, are given in separate columns, but these are not numerically assessed. To give one example we may say that *Grosse Mignonne* Peach has for the column above mentioned 8 points, 8 for vigour, 8 for fertility, 10 for size, 9 for quality, 8 for firm-

9 A.M. A heavy fall of snow occurred on the 13th, by next morning there was an average depth of 3½ inches; at the commencement of the fall, a deal of the snow thawed as it fell. The barometric pressure has been very variable, the lowest reading was 27.92 inches on February 19, at 5 P.M.; and the highest 29.85 inches on the 18th, at 9 P.M. The temperature—registered by a thermometer 3 feet from the ground, and facing due north—has ranged from 18° Fah. on the 7th, and again on the 9th, to 56° on the 26th. The first fortnight of the month was characterised by sharp white-frosts and bright sunny days, with an easterly or north-easterly

TABLE DECORATION.—*Moderne Tafeldekoration*, von OTTO WAGNER (Erfurt, 1900: Bindekunst-Verlag: J. OLBERTZ). This book should prove of great use to all who are interested in table decoration, for it deals with a subject very indifferently represented in English publications. As a nation, we certainly do not excel in arranging light and elegant floral decorations, the efforts, even of professionals, being often forced, and resulting in the overloading of the table and the annoyance of the guests who are separated by heavy masses of greenery and flowers, which precludes conversation with the opposite neighbour. Some of the plans



FIG. 48.—HEDSOR, MAIDENHEAD, THE RESIDENCE OF LORD BOSTON. (SEE P. 154.)

ness, 9 for market value (not otherwise determined), forming a total of 60 points; while *Early Beatrice* gets only 55. *Madeleine rouge* has the highest number of points, viz. 73. Eighty-three kinds of Cherries are thus tabulated; forty-five Plums, and twenty-five Apricots. Some of the sorts are not known in this country, and that circumstance added to the length of the tables makes it undesirable for us to publish them at full length.

THE WEATHER IN CORNWALL.—We learn from Mr. BARTLETT, of Pencarrow Gardens, that the rainfall at that place for the past month amounted to 5.85 inches. There were ten rainless days; the greatest fall in twenty-four hours was that of 1.48 inches, measured on February 15 at

winds; this weather culminated in the heavy snow of the 13th, and was succeeded by rough winds from the west, and mild showery weather with very little sun.

"THE CENTURY-BOOK OF GARDENING."—We have, on several previous occasions, referred to this useful book (published by GEORGE NEWNES, Southampton Street, Strand), and now note the appearance of the last part. This includes articles on foliage-plants, flowering-plants, window-box and window-gardening, and tub-gardening. Information upon soils and their treatment, and a calendar of a year's work in the garden, are included, and an index of all the subjects treated of in the twenty-six parts of the publication. The illustrations are excellent.

given in this book, such as fig. 30, when carried out would efface the chairman when he rises to address the assembly. Herr WAGNER'S Handbook is well and clearly illustrated, and by the aid of his pictures and plans many hints may be gleaned, even by those who cannot read the letterpress.

JAMAICA.—The supplement to the *Jamaica Gazette*, dated February 1, contains a full report on the working of the Botanical Department for the year ending March 31. It deals with numerous economic plants cultivated in the island; with the herbarium and library, the provision for agricultural education, and reports from the various subsidiary gardens. The meteorological records will prove valuable, as indicative of the general nature of the climate.

"BOTANICAL MAGAZINE."—The March number contains coloured figures and illustrations of the following plants:—

Stemhlopea Rodigasiana (Cogniaux), tab. 7702.—See *Gardeners' Chronicle*, 1898, ii., f. 9.

Matthiola sinuata, var. *Oyensis*, tab. 7703.—This is a native of Western France, and is a white-flowered variety of *M. sinuata*, differing from the typical or ordinary condition in the total absence of a dense greyish tomentum. The plant grows on the island of Yeu, which has been Latinised as Oya.

Ceropegia Woodii, tab. 7704.—A pretty little Asclepiad, noted by us among Mr. William Bull's novelties in 1897, ii., p. 357, fig. 104.

Cereus mojavensis (Engelmann), tab. 7705.—A dwarf, tufted Californian species, with ribbed stems 3 to 6 inches high. The spines are slender, unequal in length, and borne in tufts on the ribs. The flowers are rosy-pink.

Kniphofia rufa (Baker), tab. 7706.—A species from Natal, having linear entire leaves, and tall, loose racemes of long, yellow, tubular flowers, with projecting stamens.

HAIRINESS OF PLANTS.—Several plants, says Mr. HEMSLEY, in the *Botanical Magazine*, t. 7703, exhibit the peculiarity of densely hairy and glabrous individuals growing intermixed. *Borrichia arborescens*, and *B. frutescens*, West Indian species, are instances in point; so are *Matthiola incana*, and *M. sinuata*. We may also mention *Greyia Sutherlandii*, which produces glabrous and hairy leaves on the same bush. Such occurrences should be borne in mind when considering the theories propounded as to the causes of the glabrous or of the hairy condition.

DENDROBIUM AUREUM.—From the gardens, Gatton Park, Reigate, Mrs. COLMAN has been obliging enough to send us an abnormal flower of this species. It is a solitary flower, placed apparently at the end of a leafy pseudo-bulb, but really lateral. The two petals are in union with the column, but otherwise there was no distortion in the flower itself.

THE BRIGHTON AND SUSSEX HORTICULTURAL SOCIETY have arranged three shows to be held during the present year. The spring exhibition will take place on April 3 and 4; the summer show on August 28 and 29; and the display of Chrysanthemums on November 6 and 7. This Society is not one of those that devote their energies exclusively to the holding of exhibitions; it is a Mutual Improvement Association as well, and the syllabus just to hand with the schedule of exhibitions, shows that some very practical questions are discussed by capable gentlemen at their monthly meetings. The next meeting to be held will take place on March 15, and Mr. LEWIS BUDWORTH will read a paper on the "Rotation of Crops under Glass for Market and Private Use." The secretary to the Society is Mr. J. THORPE, 53, Ship Street, Brighton.

NEW VARIETIES OF DAHLIAS.—A supplement to the first edition of the *Official Catalogue of the National Dahlia Society*, compiled in 1898, has just been issued. This list includes forty-three new varieties, consisting of two show, two fancy, three Pompon, thirty Cactus, and six single-flowered varieties. These figures again show the extraordinary development that is occurring in that type known as "Cactus." All of the varieties are described in the list, and selections of twelve varieties of most types for exhibition, and for producing effect in the garden are given, and will doubtless be useful to all cultivators, whether exhibitors or not.

THE NATIONAL DAHLIA SOCIETY has just issued its report for the past year, and a schedule of prizes to be offered at the next exhibition, which

has been fixed for September 7 and 8; at the Crystal Palace. Several new classes have been added, that will afford exhibitors greater opportunities than heretofore to demonstrate the decorative qualities possessed by Dahlia flowers, and some of them have doubtless been introduced by the Society with a view to finding some less inartistic method of exhibiting the blooms than upon flat show-stands, as in the case of show and fancy varieties, or great symmetrical triangular bunches, as in the case of those of the "Cactus" section. There are classes for sixty blooms not more than two of a sort, and for twenty-four blooms distinct; in either case to be shown with Dahlia-foliage. Then in Class 10 the exhibits are to be of "twelve varieties, six blooms of each, to be arranged with any suitable foliage in vases. The stems may be stiffened with wires, but no wire-frames may be used. The quality of the blooms will be the first consideration with the judges." Similar competitions will occur also in the classes for amateurs. Another innovation will be the exhibition of "Cactus" Dahlias in pots. We would recommend the Committee to impose some regulation upon exhibitors, that shall secure that the flowers staged will be neatly and effectively labelled. At previous shows of the Society, the untidiness and want of uniformity in this matter has been such that would scarcely be tolerated at any other floral exhibition. Greater care should also be taken in respect to varieties that are given certificates on the day of the show. The confusion of the labels last year rendered the work of the representatives of the press most difficult. The Society has an excellent Secretary in Mr. J. F. HUDSON, Gunnersbury House Gardens, Acton.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held in the lecture-hall of the Institution on Monday, Mar. 12, 1900, when a paper will be read by Mr. J. SHIRESS WILL, Q. C. (Associate), entitled "Underground Water." The chair will be taken at eight o'clock. Members who are graduates of any of the recognised Universities of the United Kingdom are requested to intimate the fact to the secretary of the Institution, in order that the same may be indicated in the next issue of the list of members.

THE NEWCASTLE FLOWER SHOW.—The schedule of prizes to be offered by the Durham, Northumberland, and Newcastle-upon-Tyne Botanical and Horticultural Society at their show in Newcastle, on July 25, 26, and 27, 1900, embraces sixty-seven classes. The nine plant classes include one for a group of miscellaneous plants for which a sum of £22 is offered; and separate competitions for Orchids, Gloxinias, Cordylines, Codiaums, Begonias, &c. The feature of the section for cut flowers will be Roses, and there are classes for flowers of perennial herbaceous plants, Violas, Carnations, and for flowers arranged in various form of decorations. A number of classes are also arranged for fruits and vegetables in season at the time the show will be held. The Secretary is Mr. J. B. REID, Mosley Chambers, 30, Mosley Street, Newcastle.

KEW PUBLICATIONS.—We have received a copy of the *List of Published Names of Plants Introduced to Cultivation 1876-1896*, and of the *Handlist of tender Dicotyledons cultivated in the Royal Gardens, Kew*. The titles alone show the importance of these publications, to which we shall probably refer on another occasion.

AGRICULTURAL EDUCATION.—Sir WILLIAM THISELTON-DYER took the Chair at the last meeting of the Society of Arts, when Mr. HEDGER WALLACE read a paper on "Agricultural Education in Greater Britain." The lecturer had much of interest to say about planting, as distinct from farming, and when discussing the vexed question as to whether a fit training for life in the colonies

was to be obtained in England, pointed out that the gardeners who left Kew carried with them some knowledge of the culture of economic tropical plants. These, however, are not a large proportion of those who enter upon a colonial life, and while the principles of plant-culture are the same all the world over, even the conditions of colonial farming practice are not to be properly learned over here. In great detail, Mr. WALLACE surveyed agricultural education in its widest sense throughout our colonies in elementary schools, where the subject is considered more important than it has hitherto been here at home in special schools, stations, and colleges. The effects of the imperial and other governments to benefit both white and coloured culturists were gone into, including the work of the new department in the West Indies. In fact, a most valuable contribution to the state of our knowledge on the subject was the result of Mr. WALLACE's efforts. In opening the discussion which followed, Sir WILLIAM THISELTON-DYER made many suggestive remarks upon the culture of the soil in England, pointing out how private enterprise had done much here which public authorities had to do abroad. This is, fortunately, quite true, but may it not tend to lead our Government to look to individual effort in many cases where it should itself take the lead.

HEDSOR.

SITUATED near Maidenhead, Bucks, on a commanding eminence at 200 to 300 feet above the Thames, from which it is rather more than half a mile distant, stands Hedsor (fig. 48, p. 153), the seat of Lord Boston. The situation rivals in respect of natural scenery the adjoining estate of Cliveden. The approach to the house from the Taplow side is by a carriage-drive of rather more than a mile in length, running through woodland and park, and flanked by a free growth of Rhododendrons for a considerable distance, also by Conifers of good dimensions. There are fine specimens of *Pinus excelsa*, *Sequoia sempervirens*, *Cryptomeria japonica*, and others.

The mansion stands on the crest of a ridge which overlooks the valley of the river Thames, which is very picturesque at this part. The mansion, rebuilt in 1862, in the Italian style, is of white brick with stone coigns and dressings; from it a grand view of the Thames and district is obtained. The pleasure-grounds surrounding the house are undulating. There is no flower-garden proper, but several beds are planted in the summer with Cannas, which are here much in favour, and others are filled with Pelargoniums in variety. These beds are in the spring made gay with multi-coloured varieties of Wallflowers, with Violas, *Silene pendula*, and a variety of spring-flowering plants. Tea Roses are rather profusely planted in borders and beds.

Attached to the mansion is a conservatory that is kept continuously gay with plants brought from the cultivating-houses in the kitchen-garden, which lies at a considerably lower elevation. Walking in the pleasure-grounds surrounding the mansion, good views are obtained over the river and neighbourhood, some of which are kept open by cutting back the trees when they encroach and threaten to obscure them, and in other instances peep-holes or tunnels are cut through the arboreal vegetation. Thus views are obtained of Cookham and Cookham Weir, and the Maidenhead district, while extensive views of open country are seen to the west and north-west over Marlow, and towards the Chilterns. On one of the Oak-crowned knolls in the park there stands an ornamental castellated structure that forms a pleasing object in the view from the mansion and other points.

Another carriage-drive from the south-west side leads up from the Thames valley, off the Cookham and Wooburn roads—a considerable ascent. The parish church of Hedsor is at a short distance from the mansion. Here rest the remains of

Fleming, for many years gardener at Cliveden, and famous for his introduction or popularisation of apring bedding.

THE GLASSHOUSES.

Very near to the church is situated a portion of the glasshouses, arranged on two sides of a square, devoted principally to Vines and Peaches. The Vines in the earliest house were pushing freely into growth at the time of my visit, the forcing, for a variety of reasons, not being early this year; but Grapes from this house have been out in April for several years past. The next is a succession Vinery; a small connecting house is occupied by a Fig-tree. Then follow a Peach-house, and two lean-to vineries, but somewhat badly placed, being shaded considerably by an adjacent building and some high trees; although good crops of fruit are annually obtained. Near here a house with a north aspect contains *Asalea indica* in variety; and passing through a doorway on to the south side, is a house filled with *Souvenir de la Malmaison* Carnations in good health is reached. The variety *Princess May* is noticeable for its exuberant growth—evidently a plant having a good constitution. Several heated pits are also found at this point filled with bedding plants.

The principal plant and fruit-houses are in the kitchen gardens, situated not far distant, but at a much lower level, a hundred or more feet below the mansion. Owing to the steepness of the paths, considerable labour is entailed in moving plants, &c., to the house and conservatory adjoining it.

THE KITCHEN GARDEN

has an area of several acres within the walls, and nicely trained trees of the usual kinds of fruits cover the different walls. Cordon Apples and Pears skirting some of the asphalt paths are in fine health, and bristle this year with fruit-buds.

The houses here are arranged so as to form a quadrangle, and consist of two ranges of hip and span construction; a couple of lean-to vineries, a span-roofed flower-house, besides heated pits with a sunken path running throughout. Entering the span-house standing at the end of these ranges, devoted to flowering plants, from which supplies go to the mansion and conservatory, I was struck with the fine appearance of a batch of *Lachenalias*, interspersed among *Primulas* and *Cyclamens*. *Lachenalia tricolor* is grown extremely well in 48-sized pots, and as many as thirty-two flowers were counted on one spike. *Solanums* raised from seed early last year had made finely-berried bushes in 32 and 24-sized pots. These had proved useful, furnishing plants throughout the winter, and were still very full of fruits, and fresh in appearance. They are treated on the planting-out method during the summer, and lifted early in the autumn and potted. Seedlings for producing this year's batch of plants were just pushing up strongly in the seed-pans. *Richardias* are also grown in quantity, and treated somewhat similarly in the summer. *Euphorbias* (*Poinsettias*) were also numerous, and apparently the plants had been very fine. Besides cut flowers used in decorations in the mansion, others are furnished for church decoration, Lord Boston wishing special attention to be given in this direction, and large quantities have to be furnished on the occasion of Church festivals, as at Easter. Chiefly for this purpose, one house is now filled with *Lilium longiflorum* var. *Harrisii*, of which Lily Mr. Wood is a very successful cultivator, he having produced as many as eleven flowers on a spike last season. The plants in question look very promising, with deep green foliage quite to the base. Mr. Wood finds that this is best attained by not putting the bulbs deep in the pots, but by keeping them rather high, and not burying them more than half their height in the soil when first potted. Later on a small quantity of loam and fibre are added as a top-dressing, and weak liquid-manure from the cow-stalls is afforded. A house is devoted to the cultivation of *Codiaeum* (*Crotons*), a favourite table-plant at Hedsor, many of which are grown as well as half-specimen plants.

Several dozens of young recently-struck plants from cuttings were in small 60's, and others were being rooted on the plants, the stem being cut round, and a small 60-size filled with light soil fitted to it. When the small pot has become filled with roots, a 4½-inch pot is used for re-potting before the plant is severed from the parent. When the latter is partially filled with roots, the old plant is allowed to gradually become very dry at the root, and then the young plant may be safely removed without the loss of a leaf. This method produces the most perfect table-plant, especially of such long and handsome-leaved varieties as those of the *Warreni* type.

Among the varieties, the pretty small-leaved *Erstedii* was noticeable with brightly-spotted yellow on a greenish-ground foliage; this also remains in a good condition when used for room-decoration, much longer than other varieties. *Sunbeam* is a new and promising variety; *Prince of Wales* was very fine, as were also *ruberrimum*, *picturatum*, *Hammondi*, an improved *Countess*, *Sceptre*, *Aigburthiensis*, and many others.

Dracenas are also well grown, and the tops of plants are rooted similarly to the *Crotons*. It was found that when removed after rooting into the small pot only, the bottom leaves were lost after re-potting; but when this was effected on the plant some time previous to removal, a perfect plant resulted without the loss of any bottom leaves. Lord Wolsley is a variety of noted excellence as a table-plant.

A batch of *Eucharis* growing on the back stage was in robust health, and the small size of the pot when compared with the size of the plants proved what may be done in this way. Over-potting has undoubtedly wrecked many collections of these plants. Rough fibrous loam and charcoal is the potting medium here used.

Seedling Palms raised from home-grown seeds are not of frequent occurrence, but Mr. Wood has for two or three years past flowered and seeded a couple of specimen-plants of *Cocos Weddelliana*, and young plants are now growing from some of these seeds. This Palm appears to thrive unusually well at Hedsor, young plants growing away with that vigour so desirable in the variety. The plants are kept in pots comparatively small for their size.

The next house is chiefly devoted to *Gardenias*, there being a fine batch of plants in 7-inch pots struck from cuttings last April, and promising an abundance of blooms. Young plants are grown on yearly, and the old ones thrown away after flowering. A portion of the roof of this house was covered by a fine *Stephanotis floribunda*, from which one large fruit was hanging, just changing from green to yellowish shade, and much larger than a hen's egg. A batch of *Pancratiums* was also good.

Two houses are devoted to two kinds of Orchids, one to *Celogyne cristata*, and the other to the old *Dendrobium nobile*, two of the most generally useful Orchids; and a fine sight they presented here. The *Dendrobiums* were fast opening their flowers, some three dozen or more of plants growing in plants ranging in size from a 6-inch to one of 16 inches diameter, and the larger plants each carrying many hundreds of blossoms. Grouped together with the admixture of a few Maidenhair Ferns and Palms the effect was very good. Of the large batch of *Celogyne*, many of the spikes of blossoms had been cut, but sufficient remained to show that the cultural requirements were well understood, the vigorous spikes, deep-green foliage, and fine pseudo-bulbs, showed the plants were in perfect health. A few of the plants are divided annually, and as these do not bloom much the following year after division, a good supply of strong flowering-plants is maintained by dividing one or two plants annually. All are grown in shallow square pans about a foot in diameter.

Other houses in these ranges are occupied by Peach-trees, two in a promising condition. With

one house, the latest, Mr. Wood remarked there had been considerable difficulty for several years in saving sufficient buds to secure a crop, so persistently had they dropped; but the past two seasons the lights had been taken off in the autumn, and allowed to remain off the house until the trees were pruned in February, with the result that the bud-dropping trouble had disappeared.

Another house had been re-planted with *Muscot* Vines last season, and they had made strong canes. A similar-sized house is filled with French Beans in pots in two batches, the earliest in nice bearing; and quantities of young Tomato-plants were quickly reaching a state suitable for planting-out. In a long range of heated pits in three divisions, the staging being very near to the glass, is a quantity of furnishing-plants coming on, including a large batch of herbaceous *Calceolarias*, which are here favourites, although not so often met with in gardens as formerly. The plants are in 7 and 8-inch pots, and in a very promising condition. One division was filled with *Adiantum cuneatum*, the fronds of which are in great demand for furnishing; and large quantities of that useful old double *Pelargonium*, *F. V. Raspail*, are grown for autumn and winter-blooming; while a batch of that favourite *Begonia*, *Gloire de Lorraine*, was still flowering freely.

Chrysanthemums are also well grown at Hedsor, and the young stock of plants were starting away well into growth.

The improved forms of the *Cactus Dahlia* are grown in quantity, and Mr. Wood has utilised a novel structure for wintering them in, and that is a disused gasometer, stood on a level surface, a doorway having been made for entering the iron structure. The roots are here plunged in a good depth of cocoa-fibre refuse, and a lamp-stool inside in severe weather to exclude frost. In the summer capital crops of Mushrooms are grown from beds made up as soon as the *Dahlia* roots are removed. The gardens have for some years been under Mr. Wood's charge, and it is pleasing to note that Lord Boston takes a lively interest in his garden, and the welfare of his employees generally. C. H.

THE MADRESFIELD CLUB PRUNING COMPETITION.

THIS competition is one of a series organised by the Madresfield Agricultural Club, whose operations cover only a portion of the county of Worcester.

The efforts of the club are at last aided by a grant from the County Council of some £150 per annum, for the purpose of affording technical instruction by experts, on the various subjects taken in hand, in the shape of demonstrations and lectures, followed by competitions amongst the pupils or others. The subjects dealt with thus far embrace winter or summer pruning, mowing, reaping, hedging, coo-perage, machinery, pole pitching, rick building, thatching, sheep management, shearing, and other rural pursuits; competitions are also held for best cultivated gardens or allotments. Prizes are likewise awarded for long service. There can scarcely be any doubt that this organisation is doing a great deal of good amongst the rural population, direct and indirect, even beyond the club's area.

This year instruction classes were formed, and a beginning made in January, and pupils were placed for one month's instruction and practical work under able fruit-growers, in their orchards or gardens. Each pupil received 12s. per week towards his expenses, suitable tools being found by the club. At the expiry of the time, including the winter's demonstrations and lectures held in widely separated districts, a pruning competition was arranged.

Fifteen competitors entered, and fourteen answered the roll call. Class A. was for farm-hands only, whilst Class B. was open. Two Apple, one Pear, and one Plum-tree were selected and numbered for each competitor. Duplicates of these

numbers were taken by two stewards appointed and balloted for, which identified each set of trees for each pruner. The trees were selected as nearly equal in size as possible. At a given signal each pruner-commenced his task, and as soon as he had completed it, he returned to a flag set up in the orchard, where the stewards registered his time and identification, for the purpose of estimating the point value. Various styles of pruning were adopted, one of the competitors using the primitive mallet and chisel.

The trees were orchard standards, and had been about seventeen years planted, with healthy, clean, fruitful growth, in fact, this orchard happened to be one of the first planted from the home-nursery on the Madresfield estate, and proved well adapted for the competition. Mr. Wright, of Chiswick, was appointed examiner and judge of the work. His awards gave the utmost satisfaction; after which Mr. Wright addressed the company (which was a large and keenly interested one), pointing out the defects of the unsuccessful ones, and addressing words of encouragement to all. He also reported to the Club Committee as to the highly satisfactory character of the work done by the pupils, especially those who had received a month's practical instruction, and who had, of course, succeeded in carrying off nearly the whole of the prizes. There are matters of national importance, and are to be continued and enlarged. *W. Crump, V.M.H., Madresfield Court.*

REPORT ON THE PRUNING COMPETITION, 1900.

I am very pleased indeed to be able to make such a satisfactory report on the work of the competitors in the pruning competition. With two exceptions, all the competitors exhibited not only very careful training, but also great care and pains in doing their work thoroughly well, showing an excellent knowledge of how trees should be pruned in order to make healthy trees capable of producing full crops of fine fruit. In a great fruit-growing county like Worcester, it is very difficult to estimate the value of such sound teaching as has been given; the effects will be of material value in the orchards of the future, and have an influence for good in the county and in the country at large. In my opinion it is a most important work, deserving of every encouragement, particularly amongst young men, who will naturally have much to do with the future management of orchards. I may add that the competitors did their work better, and showed a clearer grasp of the work than any other class of men that I have examined in any other county on the same subject. *S. T. Wright, Superintendent of the Royal Horticultural Society's Gardens, Chiswick.*

SOME SUSSEX FRUITS.

III.—THE FIG.

GREEN FIGS! The mere mention of the name of this delicious fruit makes my mouth water. I shall probably blot this page before I have done, for as it will take me some time to tell the story of the Fig-tree, my salivary glands will suffer from strain, and the oval orifice fail to keep guard. You cannot sympathise with me, you say. I am sorry for you. Perhaps you never ate a Sussex Fig; if so, I do not wonder at your mouth remaining dry. Come down next year to the famous Fig-gardens at West Tarring. You may enter and take your fill for sixpence, but, if I am not mistaken, the proprietor will be the loser by you. Nowhere in England can such Figs be seen or tasted, for here they have been established for ages, and time does not impair their flavour or fertility. But everywhere along the Sussex coast the Fig-tree flourishes, and some tons of fruit are gathered every year.

The Fig is unique among fruit-trees in its manner of producing its flowers. In China it is on this account called the *Mo Fa Kwo*—the fruit without a flower; or, as our earlier botanists would say in

their stilted way, the *Cryptogamic* fruit. This peculiarity has been known from the days of the Greek naturalists, for Theophrastus, Dioscorides, and others, from whom the Roman Pliny borrows most of his botanical lore, have left on record their observations and ideas respecting it.

CAPRIFICATION.*

as it is now called, is thus described in the semi-scientific, semi-mythic language of the ancients. "The wild Fig, known by the name of *Caprificus*, never ripens itself, though it is able to impart to the others the principle of which it is thus destitute; for we occasionally find Nature making a transfer of what are primary causes, and being generated from decay. To effect this purpose the wild Fig-tree produces a kind of gnat. These insects, deprived of all sustenance from their parent-tree at the moment that it is hastening to rottenness and decay, wing their flight to others of kindred though cultivated kind. There, feeding with avidity upon the Fig, they penetrate it in numerous places, and by thus making their way to



FIG. 49.—SHOOTS OF THE FIG WITH YOUNG FRUITS.

"a", Fruits that may withstand the winter and ripen early;
"b", younger ones that will produce late fruit.

the inside, open the pores of the fruit. The moment they effect their entrance, the heat of the sun finds admission too, and through the inlets thus made the fecundating air is introduced. These insects speedily consume the milky juice that constitutes the chief support of the fruit in its infant state; and hence it is that in the plantations of Figs a wild Fig is usually allowed to grow, being placed to the windward of the other trees, in order that the breezes may bear from it upon them." This extract, which might be supported by many more from the ancient authors, is sufficient to show that the Fig had been the subject of careful observation, while it also reveals a good deal of ignorance as to the processes of growth and fertilisation.

Let us see how the matter stands. If a tree be examined in autumn, when the leaves have newly fallen, it will be seen that a great number of young unripe Figs remain. If the weather during the succeeding winter prove severe, the larger of these will certainly fall. There are still, however, a good many little fruits to be seen, and with ad-

vancing spring these begin to develop, and form part of the fruit of the ensuing autumn; no blossom, however, will at any time be seen. The Cherry, Apple, Quince, and other trees will be gay in spring, but the Fig-tree will retain its sombre hue, and put forth its large green leaves as if it never intended to yield a crop of fruit. There is, then, in the popular sense, no flower to the Fig-tree. The branches seem to put out young Figs without the intervention of blossoms, just as the viviparous water-nail (*Paludina vivipara*) seems to produce its young without going through the process of oviposition.

We will gather one of these green Figs, and examine its internal anatomy. If we have a microscope, and a well cut section of the fruit, so much the better. A section through a green Fig shows it to consist of a leathery bag, the interior of which is hollow. From the fleshy receptacle there are seen to grow a thousand little bodies, surmounted by hairs which all point towards the centre, and so cause the hollow portion to look like a cradle lined with wool. They may more truly be likened to the bedeguar on the Rose. These hairs are in reality the pistillate processes of the female or fertile flowers, and the little bags at their bases are the ovaries containing the seeds. If these should be fertilised and ripen, they form the small hard portions of the Fig, which so often find their way into a hollow tooth. In England, however, these seeds do not usually ripen, or at least, it is correct to say that owing to the fruit being eaten in a fresh state, they never become hard and objectionable, as they do in the case of the Turkey Fig. The Fig is provided with a scale-covered aperture, the florets nearest to which are destitute of pistils. It is well known to be a prolific bearer. In some countries no fewer than three crops may be gathered; in England we have to be content with one.

The life-history of a Sussex Fig is as follows:—If we examine a bare tree on New Year's Day in a normal season, it will present the appearance shown in the drawing. Here and there green Figs from the size of a Cob to that of a Walnut appear; many others will probably be lying at the foot of the tree, killed by the ordinary frosts. Those which we see may or may not continue to develop; if they do, they form the early crop. If they fail, however, no great harm is done. Already in the preceding autumn when the last crop was ripening, another crop was being produced, and these can now be seen coming out from almost every node of the young branches, as shown in the illustration (fig. 49). As spring advances, these will develop and form the main crop of the year. Meanwhile, another crop will come forward which is destined to fail in our climate, though in other lands it would ripen towards the end of the year. Thus, in May we have (1) any of the green Figs which survived the winter, with (2) those which at new year were in the bud, and (3) a new set coming on to form a second (abortive) crop. Again in October we find (1) the ripe Figs which were produced from the last autumn's buds, (2) the second crop produced during the summer, and chiefly destined to failure; together with (3) the young buds which are to produce next year's crop. Thus in a fertile tree there are always two if not three successive crops always in evidence.

Having stated these facts from personal study, let me quote the words of another authority. Some years ago, Mr. Kennard, the owner of some Fig-trees near Worthing, remarked to an enquirer that "though the quality varied (from year to year), there was always a crop. The Figs begin to ripen by the end of August (he added), or the beginning of September, and continued during October. The crop was generally from the spring Figs (the buds in our illustration as drawn at New Year), though occasionally a few of the autumn ones ripen; the ground was manured every autumn, and pruning being avoided as much as possible." *A Sussex Naturalist.*

(To be continued.)

* This subject was dealt with in these pages in 1883.

CULTURAL MEMORANDA.

CULTURE OF CALANTHES.

As the time to pot *Calanthes* will be here shortly, a few hints on the culture will not be amiss. At the present time the plants should be resting on a shelf in an intermediate-house, being kept quite dry. A suitable compost would consist of one part fibrous loam broken by hand, one part peat, one of leaf-mould, some sphagnum-moss chopped fine, a small quantity of dried cow or horse-dung, a few small crocks, and some silver-sand. Mix these various things together, and make the whole warm before using. The most suitable-sized pot is one of 6 inches in diameter, and for small pseudo-bulbs and certain purposes, slightly smaller ones may be chosen; the larger pseudo-bulbs going into the bigger pots. Let the pots be half filled with clean crocks, over which some sphagnum-moss must be laid, then the compost. Place one pseudo-bulb in the centre of the pot, and place some of the compost round it, pressing it firmly, filling the pot nearly to the rim, and finishing off with a dash of silver-sand. The pots should be placed in the stove on a shelf near the glass. The outside of the pots should be sprinkled daily, but no water should be afforded the pseudo-bulbs till rooting begins. When the roots have reached the sides of the pots, let some chopped sphagnum-moss be placed on the surface of the soil, into which the roots will pass in a short space of time. As the pseudo-bulbs begin to swell out, water may be afforded twice a week, and liquid-manure occasionally; shading the plants from the direct rays of the sun. With this sort of treatment I have had spikes with from forty to fifty expanded flowers on them. *A. Williams, Keele Hall Gardens.*

PLANT NOTES.

TILLANDSIA LINDENI.

Those who desire to possess a plant which, whilst being striking in appearance, and remarkable for the rare shade of blue of its flowers (*Salvia patens* blue), and the length of time that these are produced, should cultivate *Tillandsia Lindenii*. The flowering time of this plant falls in the winter months. There is one drawback, the plant seldom throws up more than one flower-shaft. Like most Bromeliads, its culture presents no difficulties, and although its proper place is in the plant-stove, the plant may be allowed to stand in a warmed apartment for a week or longer time without injury. There is presented in Müller's *Deutsche Gärtner Zeitung* for February 24 last, a figure of *Tillandsia Lindenii* with five heads of flower.

NOTES FROM THE ITALIAN LAKES.

(Continued from vol. xxvi, p. 449.)

BELLAGIO has many beautiful gardens, and in addition to those already mentioned there are two others at least worthy of remark. They differ from each other considerably; the Villa Giulia being an ideal private residence, and the other is associated with one of the large hotels bordering on the lake, being a *dépendance* thereto, and known as the Villa Serbelloni.

VILLA GIULIA.

This mansion stands in a fine position, commanding a view of both the Como and Lecco branches of the lake in quite opposite directions; its grounds appear to stretch from shore to shore across the isthmus with Bellagio itself upon the peninsula. The garden faces the Lecco branch as the ground falls in that direction. Here, again, the landscape gardener has produced many beautiful effects in association with the natural surroundings, which are distinct from those of any other garden we visited. The mansion is considerably higher

than the water-level of the lake, but the water may be reached by means of terraces, and there is a boat-house in a charming spot. These terraces are worked out of the natural rock. From the lake itself this part of the garden must be most effective. In some respects one is reminded of the garden at the Villa Carlotta at Cadenabbia, by the luxuriant growth of the vegetation; but the variations in height make amends for this, there being scarcely any level places in the pleasure-grounds.

There is a too formal flower-garden in front of the house, and it is the one thing which mars the charming surroundings. Upon the southern side of this formal garden there is a luxuriant avenue of Plane-trees, the shade from which is most grateful in the heat of noonday; and behind the avenue, there are Bamboos with that free growth characteristic of plants in this locality. The varieties of Bamboo that appear finest are similar to those already quoted, viz., *Arundinaria Falconeri*, *Phyllostachys mitis*, *P. viridi-glaucescens*, and *Bambusa japonica*, the latter being most abundant; *Nerium Oleander* is in great profusion here, and the large bushes were masses of flowers. The method of planting them is a somewhat singular one, viz., in holes where walls of stone had to be made to form the terraced walks. Thus the roots are under the walks, whilst the plants themselves are upon the outer side of the wall face. That this plan suits them is evident. Other plants in flower during our visit included blue *Hydrangeas*, and *Justicias* in quantity. In the spring-time this garden must present a blaze of beauty by the number of *Camellias*, *Azaleas*, and like plants, which are effectively grouped. Palms add to the tropical effect, there being fine specimens of *Chamaerops Fortunei*, and of *Phoenix* in variety. Conifers make grand specimens; *Sequoias*, *Cryptomerias*, upright-growing *Junipers*, vieing with each other in luxuriance. One *Juniper* in particular, an aged tree, was clothed for a height of 50 feet with the rampant growth of a *Wistaria sinensis*.

In shaded places were *Funkias* in quantity, and *Ophiopogon japonicum* which is here pricked out in the manner we use *Selaginella* in our conservatories. Of *Sophora japonica pendula* was observed a fine specimen. The useful in this garden was also prominent.

There are vineyards and Orange-groves, and *Olives* and *Mulberries* are plentiful. In the direction of the Como-branch there is a broad vista nearly half a mile in length laid down in grass with a wall on either side which is chiefly covered with *Wistaria*, and as the lake is approached, lines of erect *Junipers* on either side are most effective. Our tour of these gardens was made under the guidance of a lady, and the greatest courtesy was extended to us.

VILLA SERBELLONI.

This villa and its extensive gardens occupy the highest ground close behind the town of Bellagio. From various standpoints the views obtainable are most comprehensive, and towards all points of the compass. The higher ground behind the garden proper is well clothed with trees, which form a dense umbrageous growth and delightful shade. Here and there we saw haymaking in progress, amid some grand specimens of *Wellingtonia* (one well-placed example of which is close upon 90 feet in height), and of *Cupressus Lawsoniana*, closely approaching 60 feet. The Palms include many notable examples, especially of *Phoenix dactylifera*, with immense heads and stems fully 2 feet in thickness. Of *Chamaerops Fortunei* and *C. humilis* there are also some grand plants. One *Magnolia grandiflora* above all others towers up, a superb plant, some 60 feet or so high, and is well-furnished with branches. There are Bamboos in all favourable spots. Of *Musa Ensete* there are some large specimens, with perfect foliage. An uncommon feature, even here, is a fine group of *Dasylirions*. A considerable portion of these gardens has been formed by excavations, one eminence above another being approached by tunnels. In these excavations

were found abundant materials for making walls. Upon declivities and slopes in this part we noted several forms of Cactus, with such climbing plants as *Bignonia grandiflora*, very full of flower, and *Mandevilla suaveolens*. *Daturas* were numerous, and good effects were produced with *Hibiscus sinensis*. In sunny positions the single-flowered *Portulacas* made an effective display. As an example of the suitability of this locality for *Agaves*, an immense plant might be quoted, which has been so planted as to overhang a high wall, where it is seen to the best advantage. *Jas. Hudson.*

(To be continued.)



HOME CORRESPONDENCE.

THE QUINCE IN SUSSEX.—May I be allowed to add just a few words to the exceedingly interesting and instructive letter which appeared in your last issue above the signature of "B." I find, on reference to my copy of *A Nieuwe Herball*, and now first translated out of French into English by Henry Lyte, Esq., London, 1575, "that the Quince is mentioned (p. 707, chap. 39), as *Malus cotonea*:" and in the drawing or engraving, the fruit is there shown as an obtuse Pear-shape, boldly quartered and sutured. Dodoens says, "There be two sortes of Quinces, y^e one is rounde and called the Apple-Quince; the other is greater, and fashioned lyke a Pearre, and is called the Pearre-Quince." Then follows the description:—"The flower changeth upon purple mixed with white: after the flowers cometh the fruite, of a pleasant smel, in proportion sometimes rounde as an Apple thruste together, and sometimes long lyke a Pearre, with certayne embowed or swelling divisions, somewhat resembling the fashion of a garlyke head, and when the hearie cotton or down is rubbed of, they appear as yellow as golde," &c. This description of the fruit is like some of the present time, though in size and shape those that I have seen in Kent and Sussex have varied much, both in colour, flavour, and habit, being mostly raised from seed. The names given by Dodoens are very similar to those quoted by "B." And further, "The *codignae*, or marmelade, made with honie (as it was wonte to be made in times past), or with sugar, as they use to make it nowe-a-dayes, is very good and profitable for the stomacke, to strengthen the same, and to retain and keep the meates in the same, but till they are perfectly digested." Its other medicinal virtues are both numerous, and said to be effective and curious. In that charming little book, *The Planter's Manual*, written by Charles Cotton, 1675 (just one hundred years later than the foregoing), he speaks of the Quince more as a stock whereon to graft the Pear, about which he gives full and learned directions (p. 108. a. 31). "There is a vast difference betwixt the Apple-Quince and the Pear-Quince, of which the first has a grayer bark inclining to white, more smooth and sleek, his branches thicker and more forked, the leaves not so large, and the fruit less and more full of core. The Pear-Quince shoots out his branches more straight, has a blacker bark, and downey withal; the leaves larger, and the fruit fairer and not so full of core. And this is it you are to chuse to graft upon, for the tree will ever retain all the good qualities of the stock, will put out a much finer head, and will bear a much better fruit, &c." As Quince stocks are now much used, this is worthy of remembrance. Then he speaks of a third variety: "There is of late found out a sort of Pear-Quince called the Portugal-Quince (I believe from being brought from thence), that bear an exceeding broad leaf, and is much the best of all others." *Harrison Weir, Seven-oaks, Kent.*

— In the issue of the *Gardeners' Chronicle* for February 17, "C. A. C., Arundel," asks for the address of any factory in Italy where "cotognats"

can be obtained. Through a friend at San Remo, I obtained a parcel of "cotognata" sugar-plums, and the address of the maker. This is not the form I meant, but the substance seems the same, and they are very nice; although not impossible, they may be made of a slightly "doctored" Quince. Their price is 7 lire per kilo. The form I meant was in thick slabs, and I do not think that was in any way doctored. The makers are Gaspers, Andry & Co., Confeetteria, Svizzera, San Remo. If "C. A. C." will favour me with his right address to "Westwood," Richmond Road, Worthing, I will send him a small sample of these Quince sugar-plums. I wrote to F. & A. Longley, Quince marmalade manufacturers, at Bye, and obtained a pot. It is a jelly, with bits of hardish Quince in it, and nice enough, but not to be compared for one moment with the "cotognata" of Italy. They moreover write: "The other article which you mention (cotognata) we do not make, as the supply of Quinces is so limited in the district." Then my friend, Mr. Harrison Weir, in the *Gardeners' Chronicle* of February 24, states that Quince-cheese has been made to some extent in Sussex "from time immemorial." So I am sending him a few Quince sugar-plums, that he may see how different the "cheese" he writes of is from the confectioners' cotognata. Why these condensed fruit-pulps have been called cheese I do not know; not improbably because of the original shape given them—circular and thick, like cheeses. Anyhow, the name is silly, because they are no more like cheese than this is like chalk. After all, although the Quince grows so well in Sussex, it does not appear that it is grown there to any great extent. I suppose growers there prefer glutting the markets with Grapes. A man here told me he sold his Black Hamburgs in Brighton at 4d. a pound to get rid of them! Then, before sending to Italy for a cotognata maker, it would be advisable for someone to start a Quince plantation of ten or twenty acres, and to begin by ordering as many fruit-tree growers to prepare the Quince plants for him. It would appear that the Portugal Quince is the one usually grown, but there seems to be another, and perhaps a better one. The *Cydonia Maulei* is given a fine character in Nicholson's *Dictionary of Horticulture*—"Fruit produced in great abundance, and makes an excellent preserve." Will no one or company start a plantation of this fine fruit-tree, and start an industry of the superb cotognata? *E. Bonavia, M.D. P.S.*—I am sending the Editor a few sugar-plums, so that he may see what kind of confectionery can be made of the Quince fruit. *E. B.* [Very nice, but quite unlike the Italian kind. Ed.]

CHANGE OF POTATO SETS.—The note on p. 124 on the above subject is very timely. Doubtless, many, in common with "A. L. J.," find that home-grown sets do deteriorate after a few years, and a change of sets becomes essential. It would be of interest and value to know what influence different manures, natural and artificial, in conjunction with different soils, &c., have upon this deterioration. Here, with a light soil, and, perforce, leaf-mould almost solely for manure, we find that Potatoes degenerate quickly, and the kidney varieties, Early Aurant especially, more so than the round ones. *A. C. Bartlett, Pincarrow.*

THE NEW CHISWICK.—Referring to the editorial remarks in the last number of the *Gardeners' Chronicle*, if steps are being taken to secure a site for our new garden, may I venture to mention one point which may not perhaps receive the attention it deserves, viz., the railway facilities in reaching it. Is it not possible to find a suitable spot north or west of London within reach of one (or two if possible) of our main lines? An isolated station south means not only faulty passenger service, but also what are euphemistically termed "non-competitive rates." This may be freely translated to mean that in the absence of competition, double rates would have to be paid upon every stone, brick, or pane of glass for the houses, and every ton of manure needed afterwards. The man who "went down to Jericho" is always regarded as a legitimate object of pity, but not so the Society which voluntarily places itself in the hands of one or two of the lines south of London. *Chas. E. Pearson, Chilwell.*

FRUIT-TREES.—Under this heading (nine lines from the top) Mr. A. Markham writes at p. 109, in reference to the planting of young trees received from the nursery in connection with the extension method of training, adding, "at one time I tried

the extension plan with Peach-trees; that is, the strong shoots were laid in at full length, but seemed always to result in failure, the lower buds on the shoots not forming shoots, hence the trees were lacking in symmetry." As an old advocate of the extension system in the training and building-up of established fruit-bearing trees on walls and trellises under glass in the shortest possible space of time, I may be allowed to inform Mr. Markham that failure in the circumstances detailed in his note was not the fault of the system, but of the manner in which he attempted to carry it out. Had Mr. Markham bent the said strong shoots in the direction of the ground, and secured them to the wall or trellis with nails and shreds, or matting, as the case may be, in that position, the bend starting from the point whence the first of the young shoots are desired to proceed, say 4 or 5 ins. from the bottom of the individual shoots; the check thus given to the flow of the sap would have caused every wood-bud to push the entire length of each shoot, thereby forming good-sized fan-shaped trees the first year after planting. I repeat, had Mr. Markham done this, the extension plan would have succeeded. The cutting clean out of gross shoots in established trees is to be recommended, but in the case of young trees got from the nursery such shoots should be treated as indicated. Of course, as soon as the buds nearest the base of the individual shoots so treated have pushed into growth, shreds and ties should be removed, and the shoots placed in their proper position on the wall or trellis. *H. W. Ward.*

TURNIPS.—The season is now at hand when new Turnips will be a desirable and welcome addition to the table, and I should like to see our gardeners cultivate such varieties as those we import from France, I refer to the long-rooted sort, which appears to be the only ones imported into Covent Garden. These Turnips appear to have a root large in proportion to the top, which is not usually the case with the globular varieties generally cultivated in this country. I fail to see any reason why some of our growers, such as Mr. Smith of Feltham, Mr. Wild of Sipson, and others who have large areas under glass, should not produce these Turnips to advantage, as most of our early supplies grown out of doors have to be pulled before the root is well developed, in consequence of their tendency to bolt. The long ones imported indicate by their general appearance a very quick growth, in a very light soil. They are bunched, six to nine roots together according to size, with the tops on them, bound with a thin wisp of straw, which is first soaked to make it pliable. *T. P.*

THE WEATHER IN WEST HERTS.—The recent spell of warm weather, which lasted about a fortnight, came to an end with February. Since then the days have been cold, while the night temperatures have continued rather warm for the time of year. On the coldest night the exposed thermometer registered only 7° of frost. The ground during the past week has been getting colder, and is now both at 1 foot and 2 feet deep of only about seasonable warmth. Since March began there have been a few very light falls of rain, fine snow, and soft hail, but the amounts deposited have been altogether insignificant. During the last eleven days the weather has remained very sunless and calm, the record of bright sunshine averaging only about half an hour a day; while the mean rate of movement of the air at 30 ft. above the ground was less than three miles an hour. During the greater part of the same eleven days the direction of the wind has been some point between north and east. A selected patch of yellow Crocuses first showed an open flower on the 4th inst., which is ten days later than its average date in the previous thirteen years, and later than in any of those years since 1895. *E. M., Berkhamsted, March 6.*

DAVID DOUGLAS.—As a Soone boy, born and brought up on the opposite side of the Blairgowrie road to the late eminent botanist and traveller, and whose two sisters, Jane and Ann, I knew well from childhood, and mended their quill pens until leaving for the south, you will perhaps allow me to say with what pleasure I and other readers of the *Gardeners' Chronicle*, have perused your cordial recognition of his sterling character and his distinguished service for horticulture. I was too young to enjoy his personal friendship or recognition, my eldest brother Robert being more of his contemporary. Both served their apprenticeship under the late William Beattie, a good

gardener, and the forester who laid the foundation of the grand woods and plantations that form the crowning distinction of the fine estates of the Earl of Mansfield. By a singular coincidence, I was passing through Perth on the day of the issue of this journal, February 24, on my way home from lecturing on fruit culture at Blairgowrie, and took a friend down the Kinnoull road near to Dickson & Sons' nurseries, to see the house Mr. Beattie resided in, to which I was sent as youngest apprentice in the gardens at Soone, to fetch reports of the old gardener and veteran forester's health by my master, Mr. James Dodd, for his own information and that of the late Earl of Mansfield. Of course the old Sooneites were all of them familiar with the name and work of David Douglas, and who shall say how many boys and youths were fired with their first ambition to devote their lives to horticulture by reading of the useful life and tragic death inscribed on his monument in the parish kirkyard of New Soone. Fortunately through a long series of years the gardens around the old Palace of Soone have proved useful schools of horticulture for a liberal mixture of sound practice with true and lucid theory. But Douglas was a botanist of the rare, or even a higher type than Robert Fortune. Mr. Beattie is reported to have discovered his ability, encouraged him in his studies, and to have remarked that he would rather have one David Douglas than any number of — "Muffs." It was freely reported at the time of his death that David Douglas fell a victim or a martyr to his eager search for new plants, fruits, seeds, and flowers. His sight became greatly impaired, and he was forbidden to go out without a guide. His indomitable energy sent him forth however to be gored to death by an infuriated bull or buffalo in the 35th year of his age. It is not too much to say that not only the villages of Old and New Soone, but the county of Perth, and the whole of Scotland grieved at the untimely end of this great discoverer and botanist. All the world wondered that he had crowded so much good and lasting work into so small a space of time. Surely, too, your kindly notice of the man and his distinguished services to horticulture as well as the excellent portrait of the man given in the *Gardeners' Chronicle*, might be placed in the Lindley Library or other place of honour where other departed heroes in horticulture, who being dead yet speak to us through our gardens and landscapes, and through the flowers, plants, shrubs, and trees, with which they have ennobled and enriched our native land. *D. T. Fish.*

BEAUTIFUL FRUIT-TREES.—I was glad to notice "H. H. T.'s" useful article on this subject on p. 92. Through mere pedantry or prejudice, who shall say how much our landscapes, gardens, and shrubberies have been denuded of much of their beauty by reason of the barriers erected between so-called utility and beauty. Fortunately, we are at last finding out, and "H. H. T.'s" letter may do something to hasten the progress of the idea, that to clothe beauty with utility but enhances and enriches its beauty. Hence the wider planting of Plums, Pyrus, Malus floribunda, Pears, Cherries, Medlars, and Quinces. I have long held the idea that most of our garden and orchard fruits are well worth growing in our parks, fields, hedgerows, and other places, for the beauty of their foliage, or of their flowers, as well as for their fruits. The varieties of Pears named by "H. H. T." and many others vie in glory as many other trees and shrubs do, though few equal them in brightness. Crab are superb decorative plants, alike in habit, quantity of bloom, the colour of the latter and of the varied fruits. The purple-leaved Filbert, too, affords tints which are rivalled but by few other plants, while the Nuts rank among the best, and are numerous produced under hard pruning, and the treatment meted out to shrubs in shrubberies. Apples vary widely in the colour and size of their blossoms, fruits, and foliage, that in certain cases scarcely any other flowering-tree is needed unless it is the finer varieties of Crataegus. These, with "H. H. T.'s" brilliant collection of Pears, would give a brightness to many of our gardens and landscapes which are seldom so beautiful as they might be, because of the over-abundance of Hollies, Laurels, and other common evergreen species. *D. T. F.*

A GREAT SUGAR-PRODUCING COUNTRY.—At pp. 127-128 in your issue of February 24, 1900, you reproduced from *American Gardening* a remarkable article on the above subject. Thus:

"The average yield of sugar to the acre of cane is greater in the Hawaiian Islands than in any other cane-growing country in the world; and its position in this respect demands our attention. The average yield of Maui, for instance, is about 3½ tons of sugar to the acre; Hawaii's average is lowered by the smaller-producing qualities of her leeward or dry side, but would not go lower than 4 tons; Kauai, from 4 to 5 tons; and Oahu, 6 to 7 tons. There are, of course, pieces of ground, even entire plantations, on each of these islands, where the yield would greatly exceed the average of the island; one plantation of Oahu, for instance, yields 10 tons of sugar to the acre (it takes seven to eight tons of cane to produce a ton of sugar), and special yields of even sixteen tons per acre have been obtained from given sections of the same Oahu plantation." When we compare with the foregoing statement of results the average yield of sugar per acre from our West Indian colonies, including British Guiana, the latter are thrown completely into the shade. Thus the average yield per acre for a long period of years in Jamaica stands at less than one ton. British Guiana, Trinidad, and Barbados yield an average of about one-and-a-half ton. Under peculiarly favourable conditions of soil, coupled with most propitious seasons, as much as five tons of sugar are produced per acre from time to time in our West Indian colonies, but this only on very limited areas, i.e., from five to some ten acres. Three tons per acre are not, however, uncommon over somewhat larger areas. By way of further comparison, reference may be made to your leading article, dated February 10, 1900, p. 88, in which you advert to the special efforts of Dr. Morris, Imperial Commissioner of Agriculture for the West Indies, relative to the improvement of sugar production by means of new varieties of cane—a new feature of cane cultivation. Thus, you say, "Several new canes, notably that known as 'B. 147,' had maintained their position, and were regarded by the planters as most valuable varieties; the amount of available sugar was at the rate of 3½ tons per acre." Of course this does not mean the realisation of a general average of 3½ tons; but if the average yield from the new varieties amounts to 2 or 2½ tons per acre, great benefit must eventually accrue to the welfare of the West Indies. Robert Thomson, late Supt. Botanical Department, Jamaica.

SOCIETIES.

DEVON AND EXETER GARDENERS'.

The subject that came on for discussion at the last meeting of the Association was "Further Experiments with Chemical Manures in Kitchen and Market Gardening," by Mr. F. W. E. SHRIVELL, of Golden Green, Tonbridge.

The experiments, which had been conducted on similar lines to those of Sir John Lawes, at Rothamsted, on cereals, were confined to garden crops, and as they had now been continued for five years on the same plot, some interesting results had been obtained. The lecturer advised his audience not to attempt mixing manures without a knowledge of chemistry, as otherwise they were very apt to put chemical ingredients together which, applied jointly, had the effect of neutralising the good effects of each other; as, for instance, lime and soot, which ought not to be applied at the same time. He strongly advocated lime on clay soils, as it had an astringent effect, besides helping the other chemicals and dung to do their work properly and economically. Such crops as Peas and Beans were essentially lime-loving plants. As a general manure, which may be profitably used on an average allotment plot, he recommended for, say, 100 square yards, 14 lb. of basic slag or superphosphate of lime, 10 lb. of kainit, and 10 lb. of nitrate of soda. The kainit and superphosphate should be dug into the ground in the winter, the nitrate of soda applied as a light top-dressing at intervals in the spring, when the plant was on the move, and growing rapidly. It was claimed that the Brassica genus grown chiefly with chemicals showed less fibrous and more cellular tissue, and, of course, were more tender-eating in consequence. He did not suggest that dung might be dispensed with, for it was necessary, and when the soil was too light and porous, or too heavy and retentive, it had its valuable mechanical uses in ventilating the soil and assisting the free passage of the gases; but the best results, he said, had been obtained by light dressings of dung and liberal dressings of chemical manures in combination. Speaking of lawns, which could not in the ordinary way be manured, he recommended a dressing of 14 lb. basic slag mixed with 9 lb. of kainit, and, later on, 5 lb. of nitrate of soda per 100 square yards. This, he said, ought to do away with Daisies and other weeds, and improve the growth of the sward.

Mr. P. C. M. VERRON presided, and spoke of the advantages accruing to the members of such societies in having so lucidly placed before them the interesting results of such a continuous series of experiments.

CHESTER PAXTON.

A MEETING of this Society was held at the Grosvenor Museum on Saturday, when by special request the Hon. Secretary, Mr. G. P. MILN, delivered a lecture on the "Artificial Cross-fertilisation of Cereals and Grasses." Although one of the objects of this Society when first started was to encourage agricultural as well as horticultural research, this is the first lecture on a purely agricultural subject that has yet been delivered to the members. Mr. Miln prefaced his remarks by giving some interesting particulars of the improvements that has taken place in the breeds of horses, cattle, and sheep during the present century, and which have led to such beneficial results to British agriculture. But it was not, however, until quite recently that actual new breeds of farm-plants had been produced by means of artificial cross-fertilisation. The lecturer explained in detail the methods adopted in securing improved breeds by the means of artificial cross-fertilisation, and stated that to the agriculturist "plant-breeding" was almost as of great importance to him as was the judicious stock-breeding of horses, cattle, and sheep. The lecture was copiously illustrated by a series of specially-prepared lantern-slides, which embraced all the reproductive organs of plants, as well as illustrations of comparative results between some of the old and the new breeds of cereals and grasses.

Added interest was given to the meeting by an excellent collection of some two dozen varieties of Apples staged by Mr. N. F. BARNES, Eaton Gardens, and which included The Queen, Lord Derby, Newtown Wonder, Rymer, King of the Pippins, Winter Calville, D'Anjou's Seedling, King of Tompkins County, Allington Pippin, Scarlet Nonpareil, Mère de Ménéage, Sandringham, Beauman's Red Winter Reinette, and others. These were all in capital condition, and also of excellent quality, thus demonstrating the superiority of home-grown fruit over that imported from abroad.

Hearty votes of thanks to Mr. Miln for his lecture, and to Mr. Barnes for his exhibit, brought the meeting to a close.

THE SCOTTISH HORTICULTURAL.

MARCH 6.—At a meeting of this Association held on the above date in Edinburgh, a paper on "The Crocus," by Mr. S. ARNOTT, was read by the Secretary, Mr. R. LAIRD, in the regretted absence of the lecturer through indisposition. The many contributions from Mr. Arnett to our own pages upon Crocuses and allied plants prove him to be very familiar with his subject, and save us from the necessity of referring in detail to his lecture.

There were several interesting exhibits on this occasion, including a collection of Ghent or hardy Azaleas, forced under glass; and a so-called hybrid Acacia between *A. armata* and *A. Drummondii*.

Mr. COMFORT showed a fine specimen of the *Primula stellata* in a 6-inch pot.

On the motion of Mr. MCKENZIE, the sympathy of the Association will be tendered to the families of two distinguished gardeners recently deceased, Messrs. GORRIE and FAIRGRIEVE.



METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period February 25 to March 3, 1900. Height above sea-level 24 feet.

1900.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				TEMPERATURE OF THE SOIL AT 9 A.M.			
		AT 9 A.M.		DAY.		AT 1-foot deep.		AT 2-foot deep.	
		Dry Bulb.	Wet Bulb.	Highest.	Lowest.	At 1-foot deep.	At 2-foot deep.	At 4-foot deep.	LOWEST TEMPERATURE ON GRASS.
FEBRUARY 25 TO MARCH 3.									
SUN. 25	S.E.W.	deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.
MON. 26	S.E.	50.9	50.3	55.5	49.1	0.07	45.5	42.3	45.0
TUES. 27	N.W.	47.8	46.9	57.5	44.8	0.23	46.1	43.5	44.1
WED. 28	N.E.	42.2	41.5	42.5	41.9	0.04	46.3	44.5	40.2
THU. 1	N.E.	38.8	35.0	41.6	36.7	0.01	43.6	44.5	33.5
FRI. 2	N.N.W.	38.1	36.5	42.2	31.8	0.02	41.1	43.6	22.6
SAT. 3	N.W.	39.0	36.8	43.9	35.9	0.01	40.9	42.9	30.4
MEANS...		43.4	42.0	47.4	41.0	0.56	44.3	43.3	36.8

Remarks.—A dull, sunless week, with cold, northerly winds and showers at intervals.

MARKETS.

COVENT GARDEN, MARCH 8.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

PLANTS IN POT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Adiantum, p. doz.	5 0-7 0	Ficus elastica, each	1 6-7 6
Arbor-vitæ, var. doz.	6 0-36 0	Foliage plants, var., each	1 0-5 8
Aspidistra, p. doz.	18 0-36 0	Genista, per doz.	10 0-15 0
— specimen, each	5 0-10 6	Lily of Valley, each	1 9-3 0
Croton, per doz.	18 0-30 0	Lycopodium, doz.	8 0-4 0
Cyclamen, per doz.	8 0-10 0	Marguerite Daisies, per dozen	8 0-12 0
Dracenas, var., doz.	12 0-30 0	Myrtles, per dozen	6 0-9 0
— viridis, per doz.	9 0-18 0	Palms, various, ea.	1 0-15 0
Dutch Hyacinths, per doz.	6 0-12 0	— specimens, each	21 0-63 0
Ericas, var., per doz.	18 0-36 0	Pelargoniums, scarlet, per dozen	8 6-12 0
Eucynema, various, per dozen	6 0-18 0	Primulas, per doz.	5 0-8 0
Evergreens, var., per dozen	4 0-18 0	Roman Hyacinth per doz.	10 0-12 0
Ferns, small, per 100	4 0-6 0	Tulips, per doz.	1 6-2 6
Ferns, in variety, per dozen	4 0-18 0		

OUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arum Lilies, dozen blooms	4 0-6 0	Mignonette, per doz. bunches	4 0-6 0
Asparagus "Fern," bunch	2 0 2 6	Narcissus (yellow) doz. bunches	2 0-6 0
Carnations, per doz. blooms	1 6-2 6	— (double) dx. bch.	1 0-2 6
Cattleyas, per dozen	12 0-15 0	— (white) doz.	6 0-7 0
Eucharis, per dozen	4 0-6 0	Odonatoglossums, per dozen	4 6-9 6
Gardenias, per doz.	8 0-6 0	Roman Hyacinths, doz. bunches	5 0-9 0
Lilac, white, bunch	3 6-6 0	Roses, Red, per doz.	8 0-10 0
Lilium Harriell, per dozen blooms	6 0-10 0	— Tea, white, doz.	8 6-7 6
Lilium longiflorum, per dozen	12 0-16 0	— Yellow, Perles, per doz.	3 6-7 6
— lancifolium album, per dozen	6 0-4 0	— Safrano, per doz.	2 6-3 6
— lancifolium rubrum, per doz.	8 0-4 0	Smilax, per bunch	8 0-4 0
Lily of Valley, per doz. bunches	5 0-10 0	Tuberose, per doz. blooms	0 8-1 0
Maidenhair Fern, per doz. bunches	4 0-6 0	Tulips, per bunch	8 0-1 6
Marguerites, p. doz. bunches	8 0-4 0	Violets, Parma, bun.	3 0-5 0
		— dark (French), per doz. bchs.	1 0-3 0
		— English, pr doz. bunches	1 0-2 0

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	2 6-3 0	Mint, new, Ch. Is., p. doz. bunches	3 6-9 0
— Jerusalem, per sieve	1 0 —	Monks' beard (Barbe de Capucine), p. bunch	0 3-0 4
— Stackys or Chinese, per lb.	0 5 —	Mushrooms, house, per lb.	0 10-1 0
Asparagus, Spruce, per bundle	0 10 —	Onions, bags	5 0-5 6
— English forced, per bundle	6 0-8 0	— Bordeaux, boxes	3 6 —
— Giant, bundle	10 0-17 6	— picklers, per sieve	2 6-3 0
— Paris Green, per bundle	6 6 —	— Valencia, cases	6 0-6 6
— Spanish, bndl.	2 4 —	— English, cwt.	50 5 6
Beans, Channel Islands, per lb.	1 0-2 0	— German, bags	50 —
— Madeira, basket	4 0-4 6	— French	8 6-5 0
— French, pkts. lb.	1 0-1 1	Parley, per dozen bunches	3 0 —
Beetroots, per dozen	0 6-1 0	— per sieve	1 0-1 3
— per bush	1 3-2 0	Parsnips, per dozen	0 6-1 0
Broccoli, Cornish, per crate	6 0-10 0	— per bag	4 0-4 6
Brussels Sprouts, p. sieve	1 6-2 6	Potatoes, Old varieties, per ton	60 0-90 0
— per bushel	2 6-3 0	— Dunbar Main Crop, per ton	100 0-110 0
Brussels Sprouts, tops, per bush.	1 0-1 3	— New Channel Islands, frames, per lb.	0 5-0 6
Cabbage, tally	6 0 —	— Tenerife, in boxes, cwt.	14 0-17 0
— dozen	1 3-1 6	Radishes, Long, per doz.	0 6-0 8
— Savoys, per tally	8 0-13 0	Radishes, round	1 6-2 0
Carrots, English, p. dozen bunches	2 6-3 6	Rhubarb, Yorks, pr. dozen bunches	1 0-1 3
— good, cwt. bags, washed	4 0-4 6	— home grown, dozen bunches	5 0-6 0
Cauliflowers, p. doz.	1 0-2 6	Salad, small, punnets, per dozen	1 8 —
— Cornish crates	6 0-10 0	Salsify, bundle	0 4 —
— Italian, baskets of 18	4 0-4 6	Scotch Kale, bush.	8 0-4 0
Celeriac, per dozen	3 0 —	Seakale, per dozen punnets	8 0-14 0
Celery, red, roll, per dozen	12 0-18 0	Shallots, per lb.	0 8 —
Chicory, per lb.	0 8-0 4	Spinach, French, crates	3 6-4 6
Colewort, p. bush.	2 6-3 0	Spinach, Winter, small leaf, bush.	5 0 —
Cress, doz. punnets	1 6 —	Tomatoes, Canary, dozens	2 6-4 0
Cucumbers, doz.	4 0-8 0	— trays	1 6-2 6
Endive, new French, per dozen	1 9-2 0	Turnips, per dozen bunches	3 0-4 0
— Batavian, doz.	3 0 —	— cwt. bags	4 0 —
Garlic, per lb.	0 4 —	Turnip tops, bags	4 0 —
Horseradish, English, bundle	1 6-2 0	Watercress, p. doz. bunches	0 9 0 10
— foreign, per bun.	1 0-1 2		
— loose, per doz.	2 0 —		
Leeks, doz. bunches	2 0 —		
Lettuce, French, Cabbage, dozen	1 0-1 3		

FRUIT.—AVERAGE WHOLESALE PRICES

	s. d. & c.		s. d. & c.
Apples, in sieves:		Grapes, Class B.,	
— Beefeings, bahl.	4 6-5 6	per lb.	3 0-3 3
— Blenheim, per		— Almeida, per	
bushel	4 0-5 0	dozen lb.	10 0 —
— French Orabes,		— Belgians, per lb.	
bushel	4 0-6 0	Class A.	1 6-2 6
— Northern		Class B.	1 0-1 6
Greenings, per		Lemons, Messina,	
bushel	3 0-4 6	300	12 0-20 0
— Queenings, per		— Palermo, case	5 0-15 0
bushel	4 0-6 0	Lyches, Chinese,	
— Wellingtons,		new, pkt., 1 lb.	0 10-1 0
bushel	6 0-8 0	Nectarines, tray	10 0-12 0
— Various, bushel	2 6-5 0	Oranges, Denia, 420	5 6-7 0
— Nova Scotia,		— Bitters, 200	7 0 —
various, barrel	8 0-22 6	— Blood, 200	7 6 —
— Baldwins,		— Jaffa, case of 144	9 6-10 6
barrel	12 0-16 0	— Mandarin or	
— Ben Davis,		Tangerine, case	
barrel	15 0 —	of 200	12 6 —
— Golden Rus-		— Murcia, case of	
sets, barrel	21 0 —	240	5 0-5 6
— N. Spies, barrel	16 0 —	Peaches, Cape, per	
— Californian,		tray	10 0-14 0
cases, New		Pears	5 0-10 0
Town	8 0-12 0	— Californian	
Bananas, per bunch	6 0-8 0	Easter Bourré,	
Chestnuts, Spanish	12 0 —	cases	15 0 —
Grapes, English,		— half cases	10 0 —
Alcanta, per lb.	3 6-4 0	Pines, each...	2 0-3 6
Grapes, Gros Colmar,		Plums, tray	3 0-8 0
Class A., pr. lb.	3 6-4 0	Strawberries, per lb.	10 0-18 0

POTATOS.

Main Crop, &c., 70s. to 90s.; Dunbar, 110s.; Other varieties, 65s. to 85s.; Seed Potatoes from 4s. 6d. to 7s. per cwt. John Bath, 33 & 34, Wellington Street, Covent Garden.

REMARKS.—Chestnuts, Cobnuts, and Cranberries, are practically over for the season. Green vegetables, such as Thousand-headed Kale, Brussels-tops, &c., are very much down in price. Seakale also is easier in price. Among Pears from the Cape are Beurri Clairgeau, Louise Bonne, William's, &c.; but they all differ in appearance to fruits of the same varieties grown at home. Grapes from the Cape per case, 15s. to 17s. Trade generally is dull.

FRUIT AND VEGETABLES.

GLASGOW: March 7.—The following are the prices since our last:—Apples Canadian: Baldwins, 19s. to 20s. per barrel; Northern Spy, 18s. to 21s. do.; Greenings, 17s. to 20s. do.; American—Various sorts, 14s. to 18s. per barrel; Californian Newtown Pippins, 9s. to 12s. per box; Nova Scotia Apples, Baldwins, Northern Spy, Ben Davis, Golden Russets, &c., from 12s. to 18s. per barrel, according to the quality; Bananas, extras, 8s. to 9s. per bunch; No. 1, 7s. to 8s. do.; No. 2, 6s. to 7s. do.; other sorts as low as 2s. to 4s. do.; Oranges, Murcia, 6s. to 8s. per half-case; Valencia, ordinary, 420's, 10s. 6d. to 12s. 6d. per box; large, 13s. to 15s. do.; extra large, 14s. to 16s. do.; large 714's, 13s. to 14s. do.; Jumbos, 16s. to 18s. do.; some specially selected made from 18s. to 20s. (Jumbos); Seville Bitter, 6s. to 8s. per half chest; Palermo Bitter, 5s. to 6s. per box; Lemons, Palermo, 8s. to 10s. per case; Grapes 3s. to 4s. per lb.; Mushrooms, 10d. to 1s. 3d. per lb.; Tomatoes, Teneriffe deeps, 4s. 6d. to 5s. per box; cases, 6s. to 7s.; Onions, foreign, Valencia, 4 in a row, 5s. 6d. to 6s. 6d.; 5 in a row, 6s. 6d. to 7s. 6d. do.; Turnips, 1s. to 1s. 6d. per cwt.; Carrots, 3s. 6d. to 4s. do.; Parsley, 6d. to 8d. per dozen bunches; Cauliflowers, 1s. 3d. to 2s. 6d. per dozen; Cabbages, 8d. to 1s. per doz.; Celery, 6d. to 1s. do.

LIVERPOOL: March 7.—Wholesale Vegetable Market.—Potatoes, per cwt., Lynn Greys, 3s. 3d. to 3s. 6d.; Main Crop, 3s. 9d. to 4s. 6d.; Bruce, 3s. 6d. to 4s.; Champions, 3s. 4d. to 3s. 9d.; Turnips, 1s. 6d. to 1s. 8d. per cwt.; Carrots, 3s. 6d. to 4s. do.; Parsley, 6d. to 8d. per dozen bunches; Onions, foreign, 3s. 9d. to 6s. per cwt.; Cauliflowers, 1s. 2d. to 2s. 6d. per dozen; Cabbages, 8d. to 1s. 6d. do.; Celery, 6d. to 1s. do. St. John's.—Potatoes, 1s. per peck; new, 10d. per lb.; Grapes, English, 5s. per lb.; do., foreign, 10d. do.; Pines, English, 5s. each; Cobnuts, 1s. per lb.; Asparagus, 1s. per bundle; Cucumbers, 8d. each; Mushrooms, 1s. 4d. per lb. and basket. Birkenhead:—Potatoes, 1s. to 1s. 2d. per peck; Cucumbers, 1s. each; Filberts, 10d. per lb.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending March 3, and for the corresponding period of 1899, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1899.	1900.	Difference.
	s. d.	s. d.	s. d.
Wheat	25 7	26 3	+ 0 8
Barley	26 7	25 1	- 1 6
Oats	16 11	16 9	- 0 2

SEEDS.

MARCH 7, 1900.—Messrs. John Shaw & Sons, Seed Merchants of Great Maze Pond, Borough, London, S.E., write that buyers were few on to-day's market, and the transactions passing proved small. Many country buyers have

apparently elected to delay operating until the land becomes drier. Meanwhile, Clover seeds all round keep steady in value; whilst Tares point upwards. Full prices are asked for Mustard and Rapeseed. There is no alteration this week in either Peas or Haricots. A small arrival is noted of new Canadian Wonder Beans. Fine samples of Scarlet Runners are offering cheap. Canary-seed has advanced a further shilling per quarter. Liverpool now takes the lead so far as this article is concerned. Hemp-seed, however is dull.

Obituary.

ALEXANDER BAXTER.—The death took place on February 25, at Sundridge Park, of Mr. Alexander Baxter, late of Foots Cray Place, Kent. Mr. Baxter, who was born at Fochabers, N.B., served his apprenticeship in the gardens of Gordon Castle, the seat of the Duke of Richmond and Gordon, and was head gardener to the late Sir John Pender, of Foots Cray Place, for twenty-one years. He was widely respected in the Cray Valley, and much sympathy is expressed for the widow and family in their bereavement. The funeral took place at Foots Cray on the 1st inst.

ANSWERS TO CORRESPONDENTS.

ALMANACK FOR 1900: *Novice*. The correction was duly made when the error was discovered.

AMERICAN BLIGHT AND GREASE-BANDS ON FRUIT-TREES: *J. Fitzjohn*. We think that you are confusing two distinct things. Whale-oil alone, and soaps made from soft soap, or Gishurst compound-soap, the former at the rate of a $\frac{1}{2}$ lb., and the latter 2 ozs. per gallon of water, will destroy American-blight after a time. The grease-bands are strips of paper laid on other grease-proof paper, and smeared with cart-grease, which are then affixed to the Apple-trees as traps for the crawling females of the winter moth. These bands must be put on the trees not later than the second week in October, and the smearing must be repeated whenever it is seen that it has lost its stickiness. Whale-oil can only be applied in the depth of winter.

BOOKS: *A. D. B., Erfurt*. *The Effects of Cross and Self-fertilisation in the Vegetable Kingdom*, by Charles Darwin (London, John Murray); and *The Various Contrivances by which Orchids are Fertilised by Insects*, same publisher.

CARNATIONS: *H. S.* The leaves show a fungus in a young and undeveloped state. Probably it is the Carnation-rust, *Helminthosporium*.

CARPET-BEDDING: *A. Alder*. *Santolina incana* is sometimes used, as also *Calceola*. The brilliant yellow mossy plant may be *Sedum acre aureo-variegata*, or *Stellaria graminea aurea*.

GARDEN PERIODICALS PUBLISHED IN CHICAGO, U.S.A.: *H. Ganzler, Smyrna*. *American Florist, Gardening*, and *The Weekly Florists' Review*.

LEE A. AMABILIS: *Novice*. This plant is a native of the tropics, and is of easy culture in a moist hot-house in this country. Propagation is by means of slips and cuttings struck on good bottom-heat in a close case.

NAMES OF FRUITS: *R. H. W.* 1, Pear, Ne Plus Meuris; 2, Apple, Winter Quoining; 3, A., Dredge's Fame; 4, A., Gooseberry; 5, A., Beaumann's Red Winter Reinette; 6, A., Cockle Pippin.—*H. F.* Small examples of Keeping Red-streak.—*H. P.* The fruit which reached us was rotten, but it appears to be a highly-coloured Blenheim Orange Pippin.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*Enquirer*. 1, *Lælia harpophylla*; 2, *Geenera macrantha*; 2 (Orchid), *Odontoglossum tripudians* (said to have white flowers); send better specimen and some particulars about the plant. Why put two specimens under one number? *J. B.* *Dendrobium speciosum*, an Australian species.—*J. F.* 1, *Acacia platyptera*; 2, *Acacia Drummondii*.—*A. J. C.* *Eriostemon myoporoides*.—*G. W. C.* *Lonicera fragrantissima* and *Dendrobium Pierardi*.—*A. J. R.* All except 3 are remarkably good forms of *Dendrobium nobile*, 7 being *D. nobile nobiliss*, or an equally good form; 3

closely resembles the garden hybrid, *D. × Ainsworthii*. It would be interesting to state whether it was imported with *D. nobile*, or is of garden origin.—*A. B.* 1, *Cordyline australis*, often called *Dracæna* in gardens. The other two seedlings cannot be called *Dracænas*; 2 appears to be the blue *Agapanthus umbellatus*; and 3 some species of *Rhiphodia*; or, as it is often called, *Tritoma*.—*A. B.* The white, or nearly white form of *Dendrobium crassinode* is by no means common. Yours seems also to be a large variety of it.

MORELLO CHERRY, &c.: *A. F.* The Morello Cherry bears mostly on the shoots produced the previous year, and to a small extent on short, natural spurs springing from the old shoots. Figs may come true from seed; it is uncertain. The Fig can be increased by cuttings, layers, grafting, and budding. *The relation of leaves to growth*—If you pick off the leaves from any plant, or part of a plant, you check the growth of the entire plant, or of that part which is denuded of leaves, as the case may be, the apparatus by which new shoots, leaves, wood, &c., are developed being taken away.

PALMS INJURED: *F. B.* From the appearance of the plant sent, we think there is little doubt but the injury has been wrought by the tar used upon the stages. But similar effects would be produced upon young Palms if the roots were even once permitted to become quite dry, and especially if the atmosphere of the house at the time was arid. In any case, it would be well to encourage a greater degree of atmospheric moisture.

PLANTING INTERMEDIATE CANES OF GRAPE-VINES: *A Young Gardener*. Two feet to two feet and a half apart would be a suitable distance at which to plant, taking out each alternate Vine when there was danger of crowding the foliage, that is in the second year after planting. In planting between permanent Vines or rods growing at 4 feet apart, the young Vines must take the mid-line between two old ones.

PLANTS TO FLOWER AFTER GERMAN TEN-WEEK STOCKS HAVE CEASED TO FLOWER: *H. A. J.* You might plant *Gladiolus gandavensis* in variety, and the large-flowered German Asters, such as *Victoria*, *Truffaut's* *Pæony*-flowered, *Pyramidal Bouquet*, &c.

POTATOS: *A. J. B.* One of the stages of the Potato disease.

THE SOWING OF VARIOUS SEEDS: *M. J. W.* The seeds of *Amaryllis Belladonna* should be sown thinly in seed-pans, just covering them with soil to the extent of their thickness. The soil used may consist of sandy loam, or of stiff loam made porous by the admixture of one-eighth sand or road-grit, and a quarter of the whole may consist of leaf-mould. The soil should be finely sifted, and below it and over the corks there should be put a layer of soil siftings of the size of horse-beans, to which in most cases the roots of the seedling bulbs will become attached, feeling their removal but little when pricked out later. A temperature of 50° to 65° will be sufficiently high. Sow forthwith. *Hunnemannia* is a hardy biennial; and *Pentstemon cordifolius* and *Phacelia grandiflora* are hardy perennials, any of which may be sown at the present time in pots or pans, filled with moderately rich sandy soil, and placed in a common garden frame; or they may be sown in the open ground in the middle of April, pricking out the seedlings in nurse-beds, or in the case of those raised in the frame into boxes or deep seed-pans.

COMMUNICATIONS RECEIVED.—*Platanus Orientalis*.—*H. A. J.*—*T. C.*—*W. C. L.*—*H. W. W.*—*D. T. F.*—*H. C.*—*Geneva*.—*S. A.*—*E. B.*—*H. H. T.*—*A. P. B.*—*Wild Rose*.—*A. S.*—*H. M.*—*H. R. W.*—*O. J. W.*—*M. Gebhardt*.—*R. L. C.*—*R. B. L.* & Sons.

Continued Increase in the Circulation of the "GARDENERS' CHRONICLE."

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

TREBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, and ALL CLASSES OF GARDENERS AND GARDEN-LOVERS at home, that it has a specially large FOREIGN and COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.



THE Gardeners' Chronicle

No. 690.—SATURDAY, MARCH 17, 1900.

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THE INTRODUCTION OF THE POTATO INTO ENGLAND.

Nearly thirteen years ago there appeared in the columns of this journal a series of three articles by Mr. Stephen Mitchell,* giving a summary of the history of the introduction of the Potato into this country. This account was published at the time of the exhibition at Westminster known as the Potato Tercentenary Exhibition, when books of travel and of the old herbalists connected with the subject, were shown, and lectures on the Potato, its culture and its diseases, were delivered. Mr. Mitchell's excellent narrative put on record all the available evidence at that time existing of the actual facts, but two recent publications have brought to light a few most interesting facts, and have caused us to go over once more the well-reaped field of enquiry, and to glean some new scraps of information on a topic of real importance in the annals of our cultivated esculents. The two publications referred to, are a volume by M. Ernest Roze, entitled *Histoire de la pomme-de-terre*, issued in 1898, and an article from the pen of Dr. T. N. Brushfield, in the 30th volume of the *Transactions of the Devonshire Association for the Advancement of Science*, on Sir Walter Raleigh, and his supposed part

in the introduction of the Potato and Tobacco into this kingdom; a suggestive and carefully written paper, which tends to throw side-lights of importance on the question of the early travellers and colonists.

CLUSIUS.

It is beyond all doubt that the earliest recorded date of the cultivation of the Potato in Europe is that derived from the *Historia Plantarum* of Charles de l'Escluse, better known under his latinised name of Clusius, a native of Arras, in French Flanders, and the foremost botanist of his time. Somewhat altering the order of the tale as told by Clusius, so as to get the statements in chronological order, we come to the following conclusion.

In or about the year 1585 the Potato was cultivated in Italy, probably from some Spanish source, as we shall hereafter see. The cultivation was on a sufficiently extensive scale as to permit of a quantity being taken by the Papal Legate to Belgium in 1586. The envoy was of delicate constitution, and the store of Potatoes was used by him as an article of diet. One of his train gave some of the tubers to Philippe de Sivry, the préfet of Mons in the Hainaut, by whom they were cultivated, and he, in his turn, sent two of these precious tubers to Clusius at Vienna in the early part of 1588. Clusius planted them in his little garden at Vienna, and was able to take the produce with him, when he removed in July of the same year to Frankfort-on-the-Maine. The next year, 1589, he received a coloured drawing from his friend Philippe de Sivry, and noted on it the date when he received the tubers, thus:—"Taratouffi à Philipp de Siury acceptum, Vienne, 26 Januarii, 1588. Papus Peruanum Petri Ciecke." This interesting drawing is now in the Plantin Museum at Antwerp, and was probably sent thither by Clusius when he was printing his *Historia* (see fig. 50, p. 162). After this, Clusius received another drawing of the Potato-plant, this time from James Gare, jun., which reached him at Frankfort, therefore before 1593, the date of his removal to Leyden. This sketch of the entire plant, if it could be discovered in the Plantin Museum, or elsewhere, would be of especial interest to British cultivators, for Gare was a London citizen, an old friend of Clusius, from as far back as 1581 at least, when Clusius spent six months in this country on his third and last visit to our shores. Gare was also an intimate acquaintance of John Gerard, the herbalist, as we shall soon find out. Clusius, according to his custom, had sent seeds of the Potato to his botanic friends; in 1590, Dr. Laurenz Scholtz, the elder, had the plant in cultivation at Breslau, for he sent a coloured sketch of it to Caspar Bauhin, at Basel—this drawing, or a copy of it, Bauhin transmitted to Clusius, though the latter omits to mention it. Thus our *Solanum tuberosum* was being gradually diffused over the continent.

GERARD.

The first hint of its being grown in Britain is in the catalogue of Gerard's garden in Holborn, printed in 1596, which we may remark in passing, is the earliest known catalogue of any one garden.* In this list the name of "Papus Hyspanorum" occurs. Standing alone this might mean anything, but when read in connection with the *Herball* of the year following, and the enlarged edition of the catalogue in 1599, it appears that the Potato was intended, and not the Sweet Potato,

Ipomœa Batatas, Poir. The *Herball* furthermore contained the first published woodcut or engraving of the plant, which is here reproduced (see fig. 51, p. 163) from p. 781 of the book in question; and the portrait of the author prefixed to the *Herball* shows him holding a spray of the plant in his hand, thereby testifying to his pride in its possession, and his estimation of it as the most remarkable in his collection.

The account of the plant as given by Gerard should be read carefully, for several errors have arisen from his statements. He says:—"Virginia Potatoes . . . It groweth naturally in America where it was first discovered, as reported C. Clusius, since which time I have received rootes hereof from Virginia, otherwise called Norembega, which growe and prosper in my garden, as in their owne native cuntries . . . The Indians do call this plant Papus (meaning the rootes), by which name also the common Potatoes are called in those Indian countries. We haue the name proper unto it, mentioned in the title [*Battata virginiana sive Virginianorum & Papus*]. Because it hath not only the shape and proportion of Potatoes, but also the pleasant taste and vertues of the same, we may call it in English Potatoes of America, or Virginia. The temperature and vertues are referred to vnto the common Potatoes; being likewise a food, as also a meate for pleasure, equall in goodnesse and wholesomenesse vnto the same, being either roasted in the embers, or boiled and eaten with oile, vinegar, and pepper, or dressed any other way by the hand of some cunning in cookerie." *Herball*, pp. 781, 782.

The first thing worth noting in the foregoing statement is, that Gerard quotes Clusius as reporting the plant as being brought from Virginia; and he cites him as though the statement had been published, and was perfectly well known. It so happens that at this time Clusius had not published on the Potato; all that he had to say about it came out in 1601 in his *Historia*, therefore we must take it that it could only have happened by correspondence. We have no evidence of any direct correspondence between Clusius and Gerard, but there was a link between the two, and that link was Gare, as previously mentioned. Clusius mentions Gare no fewer than eleven times in his *Historia*, and fifteen times in his last work, the *Exotica*, while Gerard cites him nine times in the *Herball*. The curious thing is, that Gare sent a drawing of the entire plant to Clusius, thus establishing the fact that Gerard's plant did not come from that source. It is quite possible that Clusius in his letter acknowledging this sketch may have suggested America as the native country of the Potato, under which name all the Spanish possessions in the New World would be included.

The second thing to note is, that Gerard speaks of having procured his stock since the statement was made by Clusius. If Gerard's good faith is to pass unquestioned, he must have had some knowledge of the plant before it came into his hands, but Gerard was not famous for his straightforwardness. His garbled account of Dr. Priest's translation of the *Pemptades* of Dodoens, which was the foundation of his *Herball*, is curiously like a falsehood, and the tale he told as to finding *Peonia corallina*, Retz., growing wild near Gravesend, was exposed by his editor, Johnson, as a distinct mis-statement.* It is therefore not impossible that he set himself to mystify the readers

* *Gardeners' Chronicle*, n.s. xxv. (1890), pp. 487, 552, 584.

* See *Gardeners' Chronicle* (1876), July 8, p. 50.

* See Hanbury & Marshall, *Flora of Kent*, p. 18.

of his *Herball* as to the source whence he derived his Potatos. On the other hand, it may be charitably allowed that he was careless in many points, and did not trouble himself in matters of detail, or precision of fact. Whichever way it is to be accounted for, he certainly succeeded in leading successive generations to suppose that he had his plants by way of Virginia. *B. D. Jackson.*

(To be continued.)

NEW OR NOTEWORTHY PLANTS.

DENDROBIUM NOBILE VIRGINALE, LEEMANN'S VARIETY.

THE first true albino of *D. nobile* var. *virginale* appeared at Mr. Thos. Rochford's Nursery, Broxbourne, a small plant having flowered in 1897 amongst some plants of *D. nobile*, which had been imported by Messrs. F. Sander & Co. It came as a pleasant surprise to orchidists, and it will for a long time be among desirable plants for those who affect select varieties.

From another source, J. Leemann, Esq., of West Bank House, Heaton Mersey (gr., Mr. Edge), acquired, and this year flowered, another form of it, which seems to be an advance on the former variety in that the greenish area at the base of the lip is absent, the whole flower being pure white, except the labellum which has the faintest shade of pale primrose colour. The whole flower is equal in shape to that of the best typical *D. nobile*, and its segments are of firm substance and wax-like in appearance. Mr. Leemann exhibited it at the Manchester and North of England Orchid Society on February 1, when it was unanimously awarded a First-class Certificate. *James O'Brien.*

ORCHID NOTES AND GLEANINGS.

CŒLOGYNE CRISTATA.

MR. DE BARY CRAWSHAY obligingly sends us a three-lipped flower of this species. The two additional lips are obviously petaloid stamens, forming a triangle with the normal column thus A2 A1 A3, according to the notation generally adopted where A1 represents the column or perfect stamen, and A2 A3 the two stamens of the outer row, which are usually suppressed, but which are present in the flower before us in the guise of lips. Gardeners will recognise it as a semi-double form.

WOODHATCH LODGE, REIGATE.

T. B. HAYWOOD, Esq., has succeeded for a number of years in making his garden an excellent example of the gardener's art as it is pursued in the British Isles; for everything that he takes in hand, whether fruit or flowering plants, is grown to perfection, and neatness and trimness are observable everywhere both under glass and out-of-doors. Mr. C. J. Salter, who is the gardener at Woodhatch, cultivates most subjects with success, and especially the showier and more popular flowering plants. In evidence of this fact we may point to the Chrysanthemum which he grows superbly. Of late years the collection of Orchids has grown considerably, and at the present time the greater proportion of the plant-houses are devoted to them. These Orchids and other plants afford a grand display of bloom, this spring each of the houses, while being allowed to retain the plants which are regularly grown in them, containing in many cases specimen plants in bloom.

DENDROBIUMS.

The hybridisation of Dendrobiums has been successfully carried out at Woodhatch, and these plants afford at the present time the greater part of the show. The types with which experiments have been made are *D. × splendidissimum grandiflorum*, and the more distinct forms of *D. nobile* and *D. aureum*, and by means of careful selection a

fine race of spring-flowering crosses, showing a great variety of form and colour, and in some instances marked improvement on *D. splendidissimum grandiflorum* has been obtained. The strain is certainly remarkable for freeness of growth and flowering, and for the desirable habit of holding up their flowers to view.

By passing through the cool Odontoglossum-house which faces due east, and in which thrifty plants were noted, flowers of Odontoglossums were

direction has resulted from crossing *D. × Ainsworthi*, Woodhatch variety, with *D. nobile roseum*, the resultant cross now splendidly in flower being called *D. × Virgil*; its large wax-like flowers are of pure white, the only colour being the usual dark purple centre of the class. Other distinct selected forms are *D. × picturata* (*aureum × Ainsworthi* variety), a very pretty and distinct white flower, margined with rose, a peculiar feature being a bright chrome-yellow blotch on each side of the purple disc on

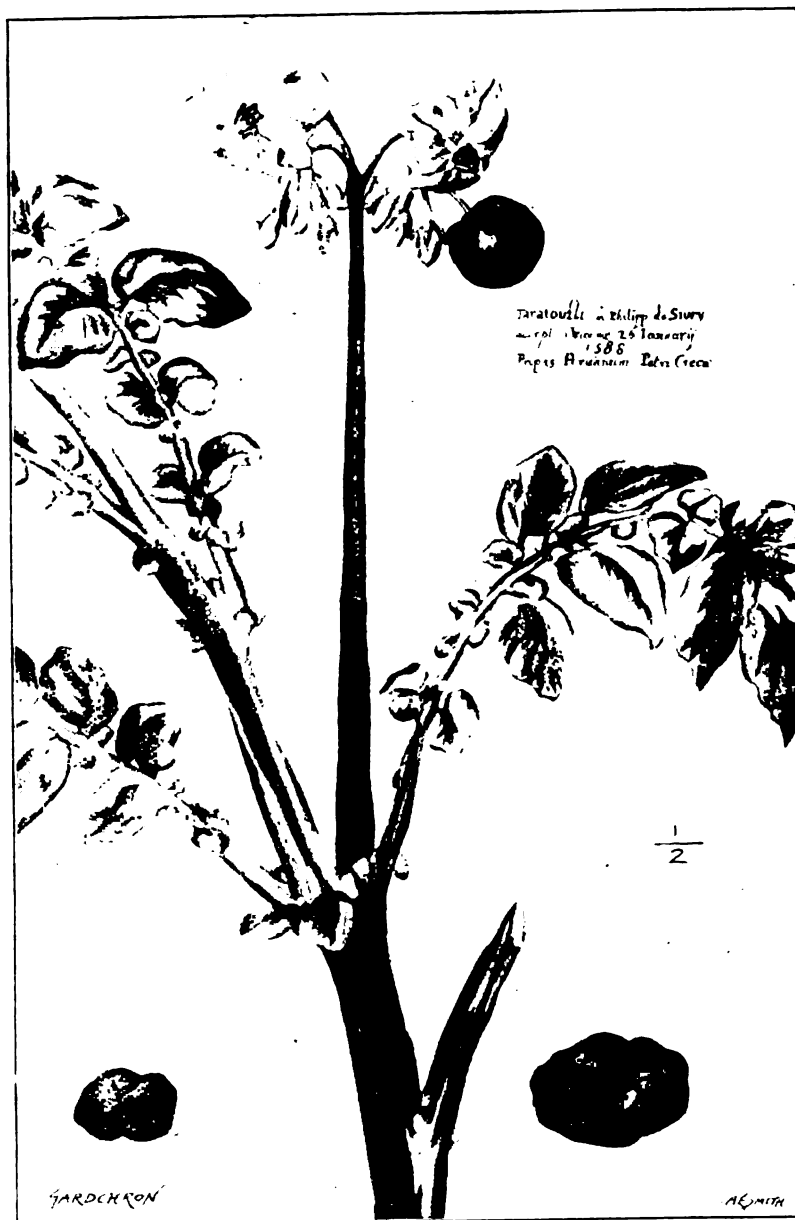


FIG. 50.—REDUCED COPY OF THE COLOURED DRAWING OF THE POTATO BY CLUSIUS (1588); REPRODUCED FROM M. ROZE'S "HISTOIRE DE LA POMME DE TERRE." (SEE P. 161.)

seen to be interspersed with those of *Maedevallias*. In the range in three divisions facing south was found a glorious display of Dendrobiums in flower, all of the plants superbly grown, and many of them carry from three to seven tall, leading pseudo-bulbs, each adorned with large flowers for the greater part of its length. The distinct forms are grouped together in batches, one of the best being the nearly white-petalled *D. × Ainsworthi*, Woodhatch variety, the white being finely contrasted with a disc of dark claret-purple on the lip. A further advance in this

the lip. *D. × splendidissimum giganteum*, the largest of its class, and brightly coloured; *D. × Homer*, and *D. × Dido*, both distinct, and comparing favourably with some hundreds of fine varieties staged in the same range, which do not show one indifferent form. The first division, which at the appeared similar to the other two, to be filled with Dendrobium plants in flower, was seen to have, as it were, an undergrowth of *Cypripediums*, among which, in bloom, were a fine *C. × selligerum majus*, two very strong *C. Rothschildianum*, *C. × Orphanum*, *C. × Calypso*

C. \times Lathamianum, C. Harrisianum superbum, C. Sedeni candidulum, and a few unnamed seedlings. Other showy plants observed in bloom in this house were two of D. \times Schneiderianum, with about forty flowers each; D. Findlayanum, D. crassinode, a well-flowered lot of D. Wardianum, just expanding their blooms, and others were suspended overhead.

The next division contained more hybrid Dendrobiums in flower, together with a very fine lot of varieties of D. nobile, the showiest of which were the richly-coloured D. n. nobilius, and D. n. Sanderianum, and the opposite of them the nearly white D. n. Ballianum. There was likewise a

P. amabilis, P. Sanderiana, and P. Schilleriana. A cool intermediate-house contained a large number of plants of *Miltonia vexillaria* in fine condition, and among them a plant of the unique pure white *M. vexillaria* Daisy Haywood, which, though still maintaining its vigour, cannot be induced to make more than one leading growth, and consequently division is impossible. There were *Cypripedium villosum*, C. Boxalli, *Celogyne cristata*, C. Lemoniana and alba, *Sophranitis grandiflora*, the graceful small-flowered *Oncidium cheiroporum*, and other species in flower. Suspended overhead were pans of *Celogyne* (*Pleione*) *lagenaria*, together with a smaller number

As evidence of careful cultivation we must not omit mention of a houseful of *Cyclamen latifolium* in fine condition; one of large, sturdy specimens of herbaceous *Calceolarias*, another of *Azalea indica*, *Primulas*, &c.; a house of *Dracenas*, *Crotons*, *Anthuriums*, and other plants, set up with *Cocos Weddelliana*, with a fine collection of species of *Nepenthes* hanging from the rafters; a large number of *Carnations* grown in pots, and a range of admirably managed vineries, Peach, and other fruit-houses. Woodhatch is by nature a beautiful place, and the interest taken in it by its owner and his gardener enhances those beauties very effectively.

BOOK NOTICE.

THE NEW FORESTRY.*

THERE can be no doubt that as a supplement to Schlich's *Manual of Forestry*, an elementary work on British silviculture, and a short treatise on the preparation of working plans for private woodlands, are required. The veteran forester, Broillard, who was from 1862 to 1880 one of the professors of forestry at the Nancy forest school, and then Conservator of forests in the Vosges Mountains till 1890, and has since been editor of the French forestry magazine, *La Revue des Eaux et Forêts*, published, in 1894, his second edition of *Le Traitement des Bois en France*,† which deals with both these questions for the benefit of French private forest owners. Broillard had considerable practical experience in managing forests before he became a professor, and as Conservator of Forests, controlled the work of a number of practical men for about ten years. All this practical experience, and all the theoretical knowledge of forestry that he gained, first as a student, and then as professor at the French National Forest School, has thus been devoted to produce a handbook of a similar scope to that attempted by Mr. Simpson. Broillard has also visited the principal forests in all parts of France, and was deputed to Germany and to Britain, to see the forests in those countries.

If, therefore, Mr. Simpson has failed to produce a satisfactory handbook of forestry, it is because of the inherent difficulty of the task before him, for which he has not had the elaborate training of Broillard, nor the wide range of practical experience possessed by that writer. It is well known among scientific men that to write a good elementary treatise on any industry based on science such as forestry, requires great practical experience, as well as a thoroughly scientific knowledge of the subject.

Mr. Simpson chiefly deals with one aspect only of forestry, that of clear cuttings, followed by artificial reproduction; and when he terms this the continental system, he is perhaps not aware that although an excellent system for Spruce, it is greatly disliked in South Germany and in France, and is followed extensively only in Saxony. In the *New Forestry* only half a page is devoted to coppice. Nothing is said about coppice with standards so common in the south of England; nor about the selection system of growing Beech by natural regeneration, which has been followed from time immemorial in the Chiltern Hills. There is no clear account of the shelter-wood compartment system of natural regeneration by seed, which was first brought to the notice of the British public in Smythies' and Fernandez' *Translation of Bagnier's Sylviculture*‡. A mere sketch is given of the highly important subject of under-planting open woods; and under the latter heading no mention is made of Douglas Fir, Silver Fir, or Weymouth Pine, all admirable species for the purpose.

* *The New Forestry: or, the Continental System adapted to British Woodlands.* By John Simpson. (Sheffield: Pawson & Brailsford, High Street; 1900.)

† Berger, Levrault et Cie., 5, Rue des Beaux Arts, Paris.

‡ Rider & Son, Bartholomew Close, London, 1882.



FIG. 51.—"POTATOES OF VIRGINIA," FROM GERARDE'S "HERBAL" (1597), P. 781. (SEE P. 161.)

singular orange-red *Laelio-Cattleya*, known as Woodhatch variety, in bloom, and in bud a remarkable specimen of D. \times micans.

In the third division we observed a good show of the lighter coloured hybrids, of which the white D. \times Virgil was the best. Together with those in bloom were some good *Cattleya Trianaei*, *Dendrobium crepidatum*, *Epiphrontis* \times Veitchi, and *Laelia harpophylla*. Several large fertilised seed-vessels of *Dendrobium Dalhousianum* and other species crossed with showy species, &c., which promise good results, told that good work is still being carried on.

A small, rather shady greenhouse was filled with *Phalenopsis*, the plants having attained to a size and vigour quite unusual under cultivation. Among those in bloom were P. Aphrodite,

of other species. The pans each contained a number of pseudo-bulbs which are growing vigorously, and will make a fine show of flowers in their season. Many fail to grow those pretty cool-house Orchids successfully, and yet if grown in this manner, suspended near the glass of the roof and liberally afforded water while growing, they are not subjects difficult of management. They seldom thrive, however, when placed upon a stage among other Orchids.

Another house was furnished with the smaller *Odontoglossums*, some few of which were in bloom. On the front stage a row of large plants of *Masdevallia tovarensis* was noted; and overhead were hanging plants of *Chimeroid Masdevallias*, some being in flower.

Mr. Simpson has visited forests in the Hartz Mountains and in Central Germany, he should also visit the Chiltern Hills Beech forests, the French Oak and Beech forests in Normandy, and Silver Fir forests in the Vooges; the splendid coppice with standards near Valenciennes, or in the Rhine Valley; the Larch woods in the Alps, the double-storied high forests of Oak and Silver Fir in the Grand Duchy of Baden, and the famed Oak and Beech forests of the Spessart. He would then find that the dense woods he recommends, and which are so admirably represented in his engravings from photographs taken in North Germany, are not the only possible phases of European

into harmony with modern ideas. There can now be no doubt that Brown's ideas of the practice of forestry are quite incorrect; and anyone who has seen the Forest of Dean, which was for some time managed in accordance with them, will at once perceive that the extermination of Beech, and the very open condition of the Oak woods in that forest have produced deplorable results. Mr. Stafford Howard, the Commissioner of Woods and Forests, and Mr. Baylis, the Deputy Surveyor in charge of the Forest of Dean, have however visited the splendid French forests in Normandy and near Valenciennes, and have obtained the advice of a good expert, Mr. Hill, who will shortly be Inspector-

may be planted $3\frac{1}{2}$ feet by $3\frac{1}{2}$ feet; but with Larch, and Spanish Chestnut and Alder coppice, 5 feet by 5 feet, and even 6 feet by 6 feet may be safely allowed. Broillard recommends even 9 feet by 9 feet for Spanish Chestnut in coppice.

The use of nurseries is also condemned by Mr. Simpson as one of Brown's useless hobbies, although they are essential as a protection to young Ash, Beech, Oak, and Silver-Fir, in frosty localities. An early crop of Larch cut away from Ash, provided the latter is then under-planted with Douglas Fir, or some other shade-bearer, is good financially as well as sylviculturally.

From the above remarks it appears that *The*

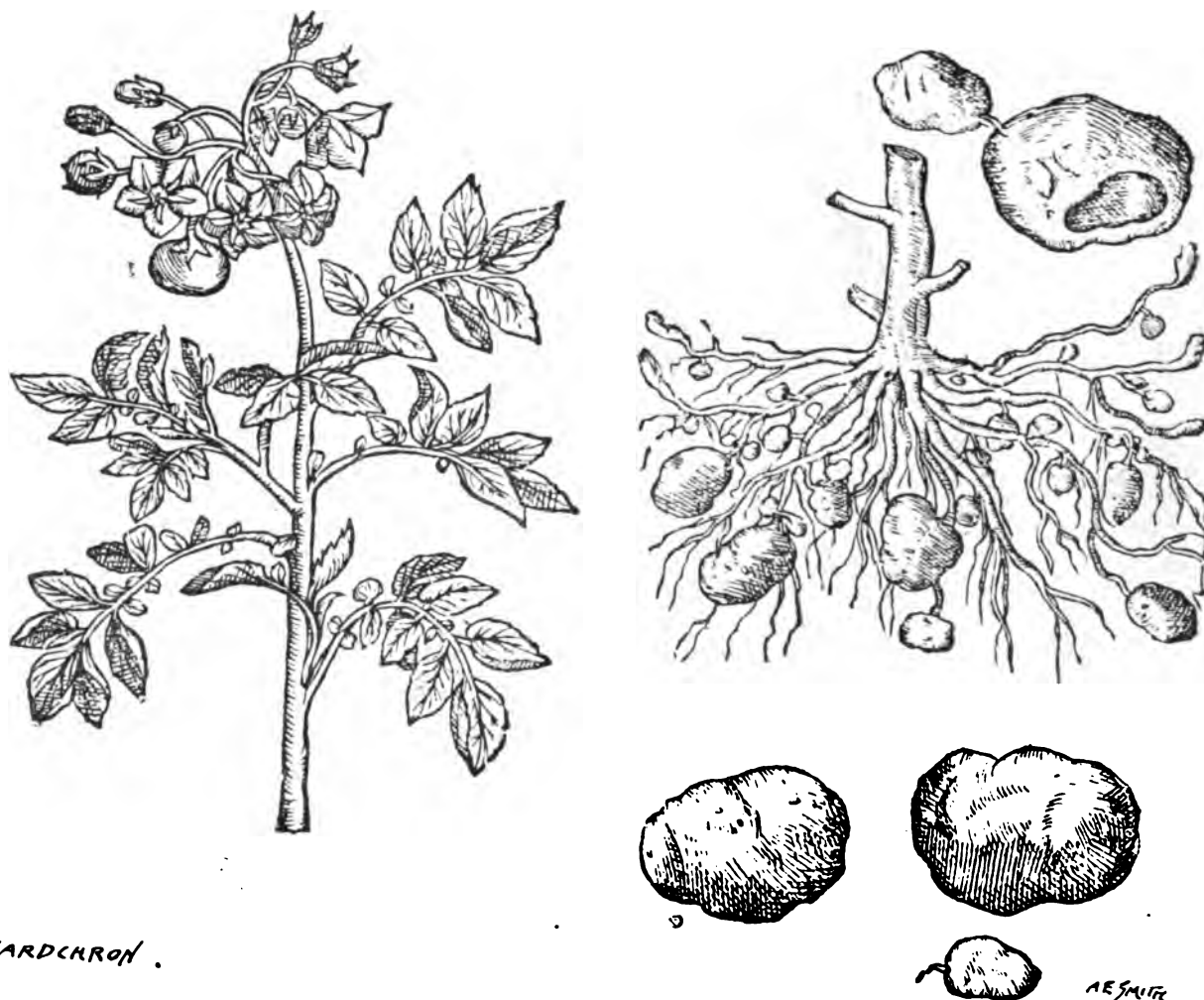


FIG. 52.—"VIRGINIAN POTATOES," FROM THE "HERBALL" . . . OF JOHN GERARDE. . . ENLARGED AND AMENDED BY THOMAS JOHNSON (1636), P. 927. THE FIGURE IS REPEATED FROM CLUNUS' "HISTORIA." (SEE P. 161.)

forestry; in fact, the great density of growth which they show, though in keeping with forests of Spruce, Silver Fir, and Beech, are quite unsuitable, except in the younger or middle-age classes of light-demanding trees, such as Oak, Larch, Scotch Pine, Ash, or Sweet Chestnut, that require to be heavily thinned out when herbage begins to appear beneath them, and then to be under-planted with shade-bearers, so that the soil may still be covered, while the crowns of the overwood are allowed sufficient space to develop and form fine boles beneath them.

Pages 37 to 45 of *The New Forestry* are devoted to a condemnation of the principles inculcated in Brown's *Forester*, but nothing is said about the handsome new edition of that work, published in 1894, with Dr. Nisbet's notes, and which, though of a somewhat patchwork nature, brings the book

General of Forests in India; and the management of these woods is now carried on in the proper way.

I have just returned from a visit to the Scots Pine woods in Windsor Forest, and find that they are being ruthlessly thinned in accordance with Brown's unfortunate system. Surely the opinion of a forestry expert as to the future treatment of these woods might be obtained by Mr. Horner.

While, therefore, agreeing with Mr. Simpson in condemning the open woods that result from Brown's treatment, we should not rush to the other extreme, and plant young trees according to what Mr. Simpson states is the German practice, i.e., several in one hole, the holes being 2 to 4 feet apart. This would involve needless danger from disease, while leading to deplorable waste of money; 4 feet by 4 feet is near enough for most species, although Pines that spread out early into branches

New Forestry cannot be safely accepted as a guide, but there are many points in it which are useful, such as the condemnation of the extravagant veneration for old and useless trees, which encumber so many woods in Britain. Although Windsor Park abounds in such trees, yet old rotting Beech and Oak have been left in a plantation of 1,200 acres in Windsor Forest, and one of these Beech that I measured a few days ago, covers about half an acre of ground, but being hid in the plantation is never seen by anyone but the woodmen. The general idea pervading the book in favour of well-stocked areas instead of the over-thinned open woods so common in Britain is worthy of all praise; and so is the suggestion taken from Schlich's *Manual of Forestry*, vol. ii., p. 112, that the root-system of plants should not be bent over, but given a natural position.

Under the heading of "Forestry Education," I quote the following remarks of Mr. Simpson's, with which I cordially agree:—"As private estates are conducted at present, the only persons worth whose while it is to learn forestry on the higher scale are estate agents, and at present they do not even profess, as a rule, to understand the business, although the woods usually represent a large portion of the value of an estate—and the most interesting portion of it as well. Carelessness on the part of owners, and indifference on the part of agents, correctly describe the state of affairs on most estates at present, so far as general management is concerned." And yet at a recent lecture at the Surveyors' Institution on "Forestry," by Dr. Nisbet, after he, as a Fellow of the Society, had advocated the employment of properly-trained forestry experts to draw up working plans for the guidance of land agents in the management of woodlands, Mr. Watney, the past President of the Institution,

while they would be practically exterminated elsewhere. Working plans, he said, should be drawn up for all private woodlands, and should include the work of the game department; while in opposition to Mr. Watney, who deprecates interference with pheasants and rabbits, and considers rigid adherence to a working plan as bad policy, Mr. Simpson states that "well devised working plans prevent vexatious changes, disputes, and worry; permit work to be carried on without interruption, check irresponsible interference, and leave heads of departments in no doubt as to their duties and responsibilities." I may add here that by ultimately affording a steady instead of an intermittent yield of wood, working plans gain the confidence of timber-merchants, and ultimately increase the financial returns from woods. I regret that I cannot agree with Mr. Simpson in other respects so cordially as I do in the above suggestions. *W. R. Fisher.*

Merit from the Royal Horticultural Society, were much smaller than usual, on account of the long drought experienced here last summer. I have shown specimens of the fruit to good judges at different times, but none of them knew it. Some of them thought it must be a seedling raised long ago, which had never been put into commerce. I have taken specimens of it with me, when judging fruit at Hereford and Bristol shows, and although there were hundreds of varieties exhibited, Gabalva was distinct from any I saw there."

SOME SUSSEX FRUITS.

III.—THE FIG.

(Continued from page 156.)

THE Fig is grown in Sussex either as a wall fruit or as a standard. In many instances, while no attempt is made to train the tree, it is planted in close proximity to a wall which affords it shelter and warmth, though it is allowed to grow freely in all directions. It seems to matter little how it is grown, for the tree is so thoroughly at home that it flourishes everywhere. From Hastings, in the east of the county, to Brighton, Worthing, Tarring, Littlehampton, Chichester, and so on to Gosport in Hants, it is everywhere prolific. Bees and wasps revel in the ripening fruit, so that those who wish to preserve them from insect ravages, enclose them in muslin bags, or place phials near them with syrup, and so lure them to destruction.

The most famous place in Sussex for the Fig-tree is Tarring, a picturesque spot of more than average interest, about 2 miles from Worthing. This interest arises in part from the fact that West Tarring was formerly a "peculiar" of the Archbishop of Canterbury, who is still the patron. Here His Grace had from very early times an episcopal palace, portions of which, dating from the Early English period of architecture, still remain. Thomas à Becket is said to have frequently resided here, and tradition assigns the planting of the Fig-trees to him. If this be not the case, we have indubitable evidence that St. Richard, the famous bishop of Chichester, who held the see so long ago as the middle of the thirteenth century (1245—1253) grafted fruit-trees with his own hands, and worked in the orchard here.

It is, however, generally held, that as the adjoining parish of Sompington, with its splendid old Saxon church, belonged to the Abbey of Fécamp, Fig-trees were first introduced by the monks from that famous place, whose name is even said to mean the Fig-orchard (Fici-Campus, Fécamp). Some prefer to credit the Romans with their introduction. The present orchard is sufficiently remarkable, first on account of the age of the trees still thriving there; and secondly, for its natural history. It was planted in 1745, and contains about 100 trees. Here some 2000 dozen of fruits are gathered in a season of average productiveness. In good seasons they may be seen here and elsewhere lying on the ground neglected, just as Apples are in the Cider-orchards of Somerset and Devon. A goodly sight, in sooth, as Mr. Grindon says, is that of the luscious, blue-black harvest, hanging aloft and around as one walks, as through a bower, below the green roof made by the interlacing boughs.

Here, too, and at Sompington, the naturalist is able to catch glimpses of a visitant which is never seen elsewhere in England. This is the Beccafico, or Fig-eater, a bird which is common enough in the Roman Campagna. It migrates hither year by year as the fruit attains perfection, remains for a month or six weeks, and then disappears.

There are many varieties of Figs, and these have each their peculiarities. Those cultivated in Sussex are chiefly the White Marseilles, the Green Ischia, and the Brown Turkey; but there are also hundreds of trees of a nondescript character, just as there are among Apples and other fruit. The tree thrives under almost any conditions, but flourishes most near the sea, in sheltered spots which are regularly manured and cultivated. "It is upon the extreme

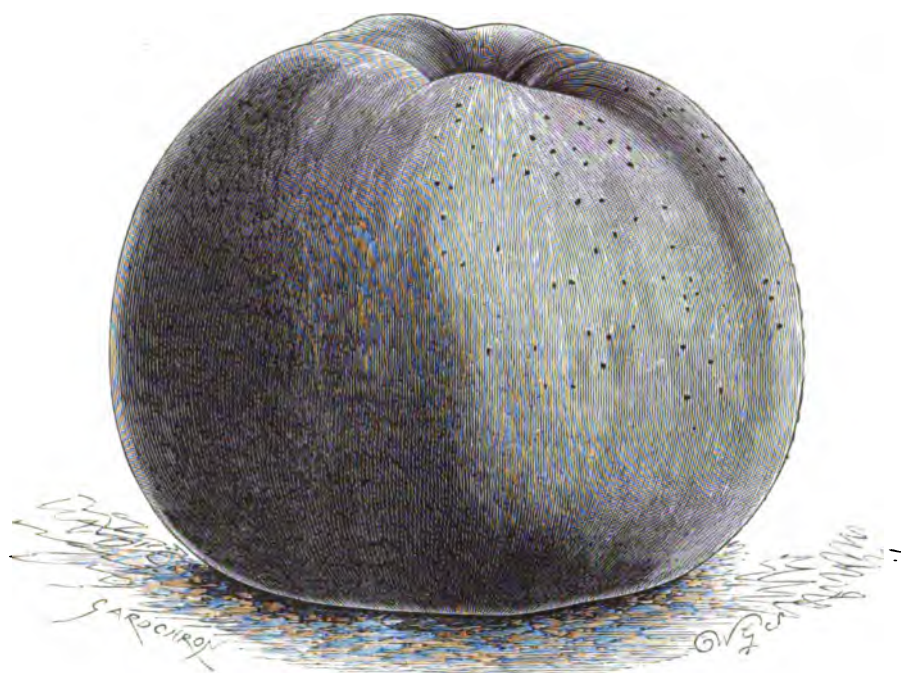


FIG. 53.—APPLE "GABALVA."

could say that he had not much faith in working plans, and that sufficiently good practical foresters could be got at present. What is really required, however, is expert advice to guide the practical foresters. When the Duke of Bedford, the Earl of Selborne, Mr. Munro Ferguson, and the Commissioners of Woods and Forests have thought it advisable to obtain expert advice regarding the management of their forests, it looks as if certain members of the Surveyors' Institution, as represented by their Council, preferred the present happy-go-lucky management of British private woodlands, which they cannot deny, and which they are taking no steps to remedy. It is clear that the landowners themselves must take the initiative, if better results are to be obtained.

Mr. Simpson's remarks, spread over 25 pages, regarding the management of pheasants and rabbits on woodland estates, are extremely valuable, and if his suggestions were accepted by landowners, the contest between the gamekeeper and the forester on so many estates would terminate. Taking them briefly, they consist in putting the game as well as the woods in the hands of the woodman, to whom the gamekeeper would be subordinate; rearing pheasants on an improved plan, and confining the rabbits in a limited part of the estate,

APPLE "GABALVA."

THE Apple illustrated in fig. 53 was brought to notice at the last meeting of the Royal Horticultural Society by Mr. A. Pettigrew, gr. to the Marquis of Bute, Cardiff Castle. In a former issue the initial letter was printed "C." instead of "G." The fruits exhibited were as large as those of Blenheim Orange, deep red upon one side, yellow on the other, and marked upon pale side with numerous dark brown spots. The stalk is set in a very deep and wide cavity, and the eye, which apparently is closed, is also set in a deep basin, which in this case is ribbed. Though the variety is sufficiently good for use as a late dessert fruit, its size will make it a very valuable one for culinary purposes in the early months of the year. The following interesting note has been sent us by Mr. Pettigrew: "We have three standard trees of this variety growing in the grounds here at Gabalva. They are about 35 feet high, with trunks thicker than a man's body, and, to judge from their appearance, they are sixty years old. The tree is a strong grower, a sure bearer, and the fruits which are large, sweet, crisp, and juicy, keep in a good condition till the middle of April. The dish of fruits, which gained an Award of

margin of the island (says Mr. Leo H. Grindon very truthfully) where, bathed by the English Channel, that the Fig is seen, as regards our own country, in its highest perfection. It flourishes where the salt-laden atmosphere renders the culture of other fruits precarious, and where, because of the constant wind-beating, many other kinds of trees are short-lived. This helps to explain the vast abundance of the Fig in the Greek Archipelago, and upon the shores of the adjacent mainlands. Near Gosport (just over the Sussex border) there are Figs with trunks a foot in diameter, and that are probably the oldest ligneous plants in the parish. In the neighbourhood of Worthing there are orchards of Fig-trees grown as standards, all of large dimensions and great age." During the warm days of such an autumn as we last experienced, no fruit could be more acceptable than were the delicious green Figs as they were plucked from the trees at Tarring, Chichester, and other Sussex haunts. *By a Sussex Naturalist.*

(To be continued.)

SOUTH AFRICA.

TACSONIA MILITARIS.

In my opinion there can be no doubt that the plant described and figured in the *Gardeners' Chronicle*, see pp. 464 and 487, last vol., is in fact my *Tacsonia Tidmarshi*, which originated in these gardens some twenty years since, the parents being *T. van Volxemi* ♀ and *T. manicata* ♂, then known to us as *T. ignea*. Plants of *T. Tidmarshi* have been sent to Europe more than once, the last consignment being to the gardens of the late Baron Ferdinand de Rothschild. Particular care was taken in the packing of the plants, and the late Baron wrote to the effect that the consignment reached his gardens in a satisfactory condition. *T. manicata*, when cut or bruised, gives off a strong odour of garlic, and *T. Tidmarshi* shares this peculiarity, but in a much weaker degree than does *T. axoniensis* ×, which we understand was raised from the same parents; thus, to those familiar with *T. manicata* and the two above-named hybrids, it is not surprising, as evidently *T. exoniensis* × partakes strongly of the nature of *T. manicata*, while *T. Tidmarshi* is nearer to the other parent, *T. van Volxemi*. *T. exoniensis* × also shares with *T. manicata* another and an objectionable feature, in being the favourite feeding and breeding ground of a species of moth, the caterpillars of which insect have at length destroyed all the plants of *T. manicata* in this neighbourhood. I should suppose that *T. Tidmarshi* × can only be bloomed in England planted out in lofty conservatories, where its long branches may range at will. The flowers are produced towards the termination of summer, at the ends of the long pendent shoots; and probably, if in early summer some shoots were permitted to escape from the inside to the outside of the roof, and there allowed free growth, flowers would appear in the autumn. The plant, when well sun-baked, is able to resist several degrees of frost.

I should take it as a favour could any reader put me in the way of procuring seeds of the fine rose-coloured *Tacsonia eriantha*, extreme drought having destroyed our plants. *E. Tidmarsh, Curator, Grahamstown Botanic Gardens.* [We cannot find any published reference to *Tacsonia Tidmarshi* ×. It is not mentioned in the new list of cultivated plants published at Kew. ED.]

PLANT PORTRAITS.

DAHLIA MADAME RENE GERARD.—A large flowered, semi-double, flat-petalled variety of the rays rose-coloured, marbled and white, *Moniteur d'Horticulture*, March.

LELIA GOUUDIANA. *Revue de l'Horticulture Belge*, March.

MONARDA DIDYMA. *Revue de l'Horticulture Belge*, March.

ROSE SOLERIL D'OR.—A Rose raised by M. Pernet-Ducher of Lyons, from Antoine Ducher hybrid perpetual, pollinated by Persian Yellow. The result is a very charming hybrid perpetual, with plukish, buff-coloured flowers. *Revue Horticole*, March 1.

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen, S.W.

Miltonia vexillaria.—Orchid experts hold various opinions regarding the season at which this species should be repotted, some holding that it should be done when the plants have ceased flowering; and others, just as the flower-spikes become visible in the partially-developed growths, new roots then appearing. I have no hesitation in advocating repotting at the present date, when all the conditions favour rapid re-establishment and growth, rather than when the plants are exhausted by flowering. When the drainage is good and the materials healthy and sound, it is merely necessary to pick off a little from the surface and replace it with fresh peat and sphagnum-moss mixed together in equal proportions. Plants whose pots are filled with roots should be repotted, using pots nearly filled with crocks, first removing all the decayed materials and every dead root; some of the compost should then be placed on the crocks, and arrange the plant so that its base is on a level with the rim. Spread out the roots and fill the rest of the space with the materials, care being taken not to press it too firmly. Having finished, apply water with a fine rose-can, which method should be followed as occasion requires till root activity is renewed. On bright mornings let the plants be sprayed overhead. *M. vexillaria* succeeds in a house having a temperature of 60° maximum, and where ample shade and ventilation can be afforded. In order to check the multiplication of Thrips, the house should be fumigated once in three weeks. The varieties *M. v. Klabochorum*, *Leopoldi*, and *superba*, will probably not be in a fit condition to repot just yet, as they flower later in the season.

Miltonia spectabilis and its varieties may now be either repotted or re-surfaced. The plants having creeping rhizomes, a fair amount of space should be allowed for the extension of these; but to obviate the use of large pots or baskets, the plants should be placed on a mound as much as possible, and the rhizomes pegged down to the material as fast as they extend. As copious supplies of water in the season of growth are necessary, a very thin layer of compost should be used, which may consist of two parts of peat to one of sphagnum-moss. A position along with the warm-growing *Cypripediums* should be found for these varieties, the shade and moisture afforded the latter meeting their requirements.

Miltonia candida, with *M. cuneata*, *M. Raguelli*, *M. stellata*, and others of this section, may also be attended to, when the condition of the new growths warrant the appearance of a fresh batch of roots. These may be grown in pots or pans, and subjected to the same kind of treatment as *M. vexillaria*, though a little more warmth is an advantage.

Cycnoches chlorochiton, commonly known as the "Swan Orchid," having rested since the leaves dropped off, has recommenced to grow, and as root-action takes place when the new growths have reached the length of an inch or thereabouts, repotting should be performed at that time. Let all the old crocks and material be removed, cut off the old roots to within an inch or so of the base, and replant in small pans. The latter should be more than half filled with clean crocks, and the compost consist of equal parts of fibry loam, peat, and moss, sprinkling in some fine crocks when working in the compost. Suspend the plants in a light position in the East Indian-house, and afford water sparingly until root-action becomes general, taking care that water does not lodge among the leaves.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener, Stoke Edith Park, Hereford.

Protection against Frost.—Here, in the west midlands, the flower-buds on Peach and Nectarine-trees are swelling fast, and measures have been taken to afford protection to the bloom at short notice. My method is to fix 11-inch and 9-inch boards, according to the height of the wall, under the edge of the coping, securing them to iron brackets. These boards throw off the rain, and thus serve to keep the blossoms dry. Poles of an adequate length are then slightly let into the ground at a distance of 3 feet from the base of wall, their tops being fastened to the edge of the coping-boards. At 2 feet from the ground pegs 9 inches long are fitted into the poles, which support and

hold the blinds securely when the latter are let down. As the garden-walls vary in height, the blinds, which consist chiefly of a mixture of wool and hair called Frigi Domo, are raised and lowered on the higher walls by means of cords and pulleys, and suspended on tenter-hooks fixed on the edge of boards with stout iron rings on the lower parts. On another wall which, owing to its peculiar construction—the whole length of it being a series of curves—coping-boards could be fixed only at great expense, the poles are fastened to the permanent coping, and when the trees come into flower, branches of Yew and Spruce are tied on the poles. This leaves a clear space between the trees and the Fir-branches, which, if lightly disposed, offer but little obstruction to the free passage of light, and a good set invariably results. I mention this to show that it is possible to obtain good results by very simple means. Old fish-nets three-fold or four-fold thick may take the place of blinds, and there is this advantage about their employment, that once they are fixed they give no further trouble. These various methods of affording protection to fruit-blossoms may be equally well applied to Plums, Cherries, and Pears, but if deemed too troublesome, coping boards may alone be fixed on the walls.

Apricots.—The weather has hitherto held the growth of the trees in check, but the flower-buds are ready to burst as soon as warmer weather sets in; still, so long as the present weather conditions prevail there is no necessity to make use of the blinds, but once the flowers unfold they should be drawn or let down over the trees at night. When sharp frosts have occurred on the previous night or in the early morning, the trees should not be uncovered till the sun has warmed the air and dissipated frost.

Figs.—The protective material should now be removed piecemeal from Fig-trees on walls if growth has started, and entirely in the case of trees that are still dormant. The present is the proper season to thin out superfluous and badly ripened shoots and fruitless branches. Let the branches and shoots be secured to the wall, &c., and afford some fresh loam, together with bone-meal and lime-rubble to the border, if the latter is a circumscribed area. Fig-trees with an unlimited root-run seldom or never fruit well in rich kitchen garden soil. In the case of unfruitful trees, a trench should be taken out, 3, 4, or 5 feet from the main stem, according to circumstances, and all roots met with in the process of digging inwards towards the stem, should be cut off to within 2 to 3 feet of the latter. Then instead of returning the soil to the trench, fill the latter with brickbats, clinkers, and old lime-rubble, mixing all together, and ramming the same as firmly as circumstances will permit. If this material be afterwards thrown out annually, the roots will be kept within bounds, and instead of unfruitful growth being produced, there will be short-jointed wood bristling with embryo fruits. Now is the time to plant Fig-trees obtained from the nursery in a dormant condition in pots. An excellent variety for outdoor culture is the Brown Turkey.

THE FLOWER GARDEN.

By J. BENBOW, Gardener to the Earl of Rochester, Abbotbury Castle, Dorset.

The Pruning of Roses.—During March the pruning of Roses in general may be undertaken in most parts of the country. The first to be attended to are climbing Roses; and these, if dealt with as previously advised in these columns, will be provided with strong flowering-shoots; and what the pruner should now do is to cut out all the dead and weakly shoots, cutting them close, and leaving no snags. Having done this, he should cut back the strong shoots to a stout eye or break, taking off from 1 to 3 feet, the weaker ones being the most shortened. The pruning being finished, let each shoot be separately secured, with, if necessary, an inclination slightly downward, then every bud on well-ripened shoots will not fail to flower. Roses which are trained, or allowed to run in orderly confusion over tree-stumps and roots, or rockwork, make a fine display if the shoots are not allowed to become over-crowded, and sunlight is permitted to reach the base of the stem, from which point the strongest flowering growths usually originate. Very strong growers, as for example, *Gloire de Dijon*, *Rêve d'Or*, *Cloth of Gold*, *Reine Marie Henriette*, *Reine Olga de Wurtemberg*, &c., if the plants are grown as hedges, often produce too much flowering-wood,

and in that event the main shoots should be spurred back to a length not exceeding 6 inches. A Rose-hedge thus treated, can be kept neat and orderly looking, and still afford a large quantity of flowers.

Moss, and Hybrid Perpetuals and Tea Roses follow each other in succession of pruning. The proper method of pruning each of these sections is to clear out all superfluous shoots, and those not likely to produce fine blooms, and cut back the stronger shoots to various lengths of from 4 to 8 inches, always cutting to a prominent bud pointing outwards and upwards, so that the resulting shoots may be erect and not tend to crowd together. Amongst Tea Roses, growth and constitution being variable, the knife or *secateur* must be used sparingly in some cases, and resolutely in others, the weaker growers needing the more severe pruning.

Winter Covering.—Remove these coverings when the conditions are favourable, either wholly or in part. Rake level the soil of newly planted beds; and make at the same time each bush firm in the soil by securing it to a wooden stake 2 or 2½ ft. long, passing the hoe frequently between the plants so as to aerate the soil. Newly planted Rose-bushes and standards, if they are well rooted, need not be pruned till after midsummer. These plants usually do not suffer from spring frosts if left unpruned; water should however be afforded, so as to prevent shrivelling.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Preparation of the Soil.—In February, heavy rains and some snowfalls hindered much necessary work in the kitchen garden, thus rendering extra diligence very necessary now that the weather has altered for the better. Plots of ground in which early and second early Potatoes will be grown, should be dug, and thrown into ridges, so as to get it warmed and mellowed. A slight dressing of fresh soot applied before digging will act as a manure, and a deterrent to insects.

Peas.—Where Peas have been raised in pots, as advised in the early part of the month of February, the plants when 3 to 4 inches high should be transplanted to the borders or quarters. The height to which the different varieties attain must be borne in mind when marking out the distance at which the trenches are dug, and this should for the dwarf varieties never be less than 2 ft. In making the trenches, let the land for a width of 1½ ft. be made smooth and level, then lay the line down the middle, and with a bright spade cut a trench 6 inches or less in depth, having an upright back. Having done this, lift the Peas carefully from the pots or troughs, and plant about 6 inches apart, the roots being placed about 1 to 2½ inches below the ground-level, making each plant firm in the soil; then draw a little soil up to the plants, and when they have grown 6 inches high, mould them up finally. Protection may be afforded by sticking small Fir or Laurel twigs in the ground along the lines, 6 inches away from the plants; and if sparrows peck the latter, netting, wire Pea-guards, or white thread with feathers hung thereon, should be placed over the rows.

Forcing-frames.—Carrots and Radishes sown in hot-bed frames should be freely ventilated during mild weather. When seed has been sown thickly, and it has germinated well, see that the plants are thinned before crowding together spoils them. When water is necessary it should be afforded in the forenoon; and about 3 P.M. the plants and the soil should be slightly sprinkled before closing the frames. Turnips require but little heat; and benefit accrues to them from an occasional dusting with wood ashes and fresh soot; and during the hours of sunshine by the removal of the lights.

Seeds.—During March, sowings of Early Short Horn Carrot, Wood's Early Frame Radish, and Early Milan Turnip, may be made on south borders or sheltered plots of ground elsewhere. Before sowing the various seeds, sprinkle wood ashes over the soil, and rake the surface smooth. If the seeds are new and their vegetative qualities are what they should be, sow thinly, but in the case of old seeds or those of low vegetative power, thick sowing is advisable. The drills should be shallow, and the soil made firm over and beneath the seeds.

Best mats should be laid over the beds and kept on them till the seeds have germinated, when netting may take their place.

Lettuce.—Those plants which have been hardened off may be planted on a south border; and in gardens where the wall trees are protected with wide copings, some planting may be done at the foot of the wall. Lettuces Veitch's Perfect Gem, and Golden Queen will, with this kind of protection, and a rich soil soon form solid hearts, succeeding the frame plants. Seed should be sown in warm spots out of doors of Cos and Cabbage varieties. Lettuces growing in frames require to be afforded water freely, and those of advanced growth may have weak liquid-manure afforded by means of a long spouted water-can pushed along the rows without wetting the leaves of the plants; or nitrate of soda may be sprinkled on the soil at the rate of 2 oz. per square yard, and water applied soon afterwards.

Cabbage.—Let the ground between the rows be well hoed, and the plants earthed up. Nitrate of soda or other fertiliser that will cause quick leaf growth, may be sprinkled on the soil.

PLANTS UNDER GLASS.

By T. EDWARDS, Foreman, Royal Plant Gardens, Frogmore.

Stove Plants.—Cuttings of *Thyracanthus rutilans* may now be taken of a length of 4 to 5 inches, and struck in heat of 68° to 70°, inserting them singly in small pots filled with sandy peat and loam. The cuttings should be put under a *cloche* or handlight, kept moist, and shaded from bright sunshine. When well rooted move them in the course of a fortnight to a slightly lower temperature, then shift them into 6-inch pots, pinching out the points at the same time, and once again in June to induce more branches to break away than would otherwise occur. For the present afford stove treatment, but in summer an intermediate temperature is to be preferred. Equal parts fibrous loam and peat, with sufficient sand to keep the compost porous, suits the needs of this plant. If tall plants are desired, those of last year may be grown on, but for furnishing vases and for table decoration, annually raised plants are best. Brown scale rapidly increases on this plant, and should be kept under by sponging the leaves, branches, &c., with an insecticide.

Eupatorium (*Hebeclinium*) ianthinum succeeds well under similar treatment as regards propagation, &c. During the course of the summer they should be potted into 7 or 8-inch pots, in turfy loam and decayed manure, and the points of the shoots stopped twice early in the season. They are not subject to insect pests.

Gesneras, as they go out of flower, should be moved to warm pits and afforded water until the foliage shows signs of ripening, when it should be gradually withheld, and the pots placed on their sides.

Gloxinias and Begonias previously started in small pots should now require a shift, which it is better to afford before the leaves become fully developed. Let the corms be kept just below the surface, and employ as a potting compost, three parts fibrous loam, and one part dried cow-dung and leaf-mould, and plenty of sharp sand. Thrips are troublesome on Begonias and Gloxinias, but they may be destroyed with the XL-All Compound, using it occasionally. Gloxinias should be afforded plenty of heat and moisture; and tuberous-rooted Begonias a temperature of about 50° at starting.

The Conservatory.—Epacris, Boronias, Acacias, Genistas, and other Cape and Australian hardwooded plants which have ceased to flower, should have the water supply reduced somewhat, and in the course of a week the shoots should be cut back, and the plants removed to a cool house for a time, repotting them when new growth has begun.

Cinerarias, Calceolarias, Pelargoniums, Roses in Pots, &c.—The plants should be fumigated or vaporised about once in three weeks, prevention being better than cure; if plants are neglected, aphids, &c., get established, and it is then difficult to eradicate them without injuring the foliage. Roses should be carefully looked over for caterpillars, for there is nothing better or more effectual than hand-picking. Cleanliness is of more importance to plants under glass than is the material in which they must root. At this season insects, especially mealy-bug and aphides, increase at an enormous rate, and every means should be taken to keep the pests in check.

FRUITS UNDER GLASS.

By J. ROBERTS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Peaches and Nectarines.—With but little assistance from sun-heat up to the present time, the fruit in the early houses is not so forward as usual at this season. Any attempt to make up for slow progress by the use of artificial heat must be done with great circumspection, although some varieties stand hard driving with less ill effect than do others. Among the early Peaches which may be called safe ones to be pushed along rapidly are Amsden June and Early Alfred, both good varieties; and among Nectarines Early Rivers, Lord Napier, and Dryden. Where extra high temperatures are really necessary in order to secure ripe fruit at a special date, the forcing should be as much as possible be carried on during daylight, and allowing the temperature to fall to 58° by 10 o'clock at night. Where there is no tendency on the part of the fruit to drop prematurely at this early stage, a gradual thinning should take place, first taking the smaller and worst-placed fruits. A practised eye will generally detect the fruits most likely to swell away and stone satisfactorily. To allow the trees to carry double or treble the amount of fruit over the stoning stage than will be required for a crop is a great mistake. A good crop of Nectarines would be two fruits to every square foot of covered trellis; and for the largest kinds of Peaches one fruit to the square foot will give the most satisfactory results. Simultaneously with the thinning, frequent attention will be necessary to secure and regulate the advancing growths. Let all overcrowding of the shoots carrying fruit be avoided, and if the extension of such shoots is not needed, they should be stopped at the fourth or fifth leaf; then forcing the energy of the shoots into the young fruits below, as will be soon apparent in the rapid swelling of the fruits. Trees which are in full leaf will need a more frequent application of water, and in all cases except in the case of young and vigorous trees, manure-water should be afforded. A cheap and ready means of feeding the trees, and one that suits the Peach, is first to apply a good dressing of soot and lightly fork it into the border, allowing the soot to become damp and then afford water copiously. A dressing of soot will answer for several applications of clear water; and the slight amount of ammonia arising from it is beneficial to the trees.

Succession Houses.—Those with trees in flower will demand daily attention in regard to the setting of the flowers with a soft brush, and on sunny days these houses may be left open an hour or two longer than others in which the fruit is set. Late houses should be kept open day and night during mild weather. In all cases these later houses should not be allowed to suffer for the want of water.

Melons.—The progress that these plants will make will depend upon the steady maintenance of top and bottom-heat, and where this has received proper attention, the buns will now be mounting the trellis. Let all side-growths be pinched to one leaf up to the trellis, and to each alternate leaf after the trellis is reached, thus throwing strength into those shoots that are left; moreover, the foliage will have ample space in which to develop. Where an early set is desired, a few of the strongest plants may be stopped when they have made 1 foot of growth up the trellis, thus inducing them to show fruitful buns. When the fruit appears, reduce to the number per plant to four, and attend carefully to the impregnation of the flowers; and finally, reduce the number of fruits to three on each. When the plants reach this stage, the roots are usually active, and additional compost may be laid on the beds or hillocks. This may consist of sound, not too light, fibrous loam, with a small quantity of bone and blood-manure added, which will stimulate the plants to quicker root action. A house or hotwater-pit may now be prepared for succession, the same directions being carried out as those given for the earliest Melons. A good sweet hot-bed of carefully-prepared dung and leaves should be made up, and well-grown and sturdy plants only should be planted. Those who have to rely on frame-grown fruit, may after this date safely prepare for a crop, by sowing some of the free-fruiting kinds. Among the best for this purpose are Hero of Lockinge and Blenheim Orange. It will be necessary to prepare an ample quantity of dung and leaves for a bed 5 feet deep, and for making up linings.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

WEDNESDAY, MAR. 21 {Torquay and District Gardeners' Association, Exhibition.

THURSDAY, MAR. 22 {Manchester and North of England Orchid Society, Meeting.

SALES.

MONDAY, MAR. 19.—Roses, Fruit trees, Hardy Perennials, &c., at Protheroe & Morris' Rooms.

TUESDAY, MAR. 20.—Final Clearance Sale of the Extensive Nursery Stock, at The Hale Farm Nurseries, Tottenham, by order of Messrs. Thos. S. Ware, Ltd., by Protheroe & Morris, at 11 o'clock.

WEDNESDAY, MAR. 21.—Greenhouse Plants, Lilies, Palm Seeds, Roses, Begonias, Tuberoses, &c., at Protheroe & Morris' Rooms.

FRIDAY, MAR. 23.—Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—43°4'.

ACTUAL TEMPERATURES.—

LONDON.—March 14 (6 P.M.): Max. 58°; Min. 34°.

Dull—cold—changeable.

PROVINCES.—March 14 (6 P.M.): Max. 47°, S.W. Counties; Min., 45°, N.E. Scotland.

Of late years, as the love for Alpine Gardens, alpine plants has increased, so the desire to cultivate them has extended. The herbarium, all-important as it is, by no means satisfies either the lover of plants for their own sakes, nor the student who wishes to investigate the structure and habits of the plants in question. Just now the study of what is called Ecology, is earnestly pursued. Intelligent observers are not contented with simply observing and admiring—they must know the "reason why." This flower has such a configuration, that one growing perhaps under apparently like conditions, is differently shaped. Some flowers have spots or hairs, or spurs, others have none. What is the meaning of all this diversity? This cannot easily be ascertained in the herbarium. In general terms it may be said that these peculiarities are or were originally the consequences of a response to the influence of external conditions, or that they are in some way connected with insect visitations and the distribution of the pollen. Sometimes they are of an aggressive nature, bidding defiance to marauders; at other times they are mere passive protectors. This class of facts relating to the adaptation of form and structure to circumstances is comprised under the general term Ecology.

It is a fascinating study, and it necessitates the investigation of the plants as they grow. Students, now, are dependent on the resources of a garden to a degree that was not dreamt of a few years ago. Among these gardens the alpine gardens established in various mountain districts in Switzerland, Italy, Austria, &c., are specially valuable for the purposes we have alluded to. They are placed at various levels—one lately mentioned by us at the Rocher de Naye is at an elevation of 7,000 feet—that at

Zermatt, for instance, is in the village at the foot of the mountains. The plants are grown on raised beds, divided into compartments and pockets, and irrigated by means of a perforated pipe carried along the ridges of the rocks. This garden contains a collection of the wild plants of the neighbouring mountains and valleys, which is very serviceable, if for no other reason that it affords the botanical tourist, not overburdened on his journey with books of reference, to name with facility the plants he has gathered on the mountain slopes.

Such gardens, if not carefully looked after, soon lose their value and become tangled masses of nameless vegetation, pretty enough sometimes, but useless for all purposes of research; whilst the labels soon assume the confused condition known to printers as "pye." Such wildernesses may be seen in the vicinity of some of the large Swiss hotels, when the zeal with which they were started has cooled down. This circumstance shows the necessity of placing such gardens under constant intelligent supervision during the season; in winter, of course, they must be left untended.

The garden known as Linnaea, at Bourg St. Pierre, in the Valais, is the best known of these gardens. We give a view of one of the many rock-beds in our Supplementary Illustration. It is maintained under the auspices of a society instituted for the purpose, and is under the direction of M. CORREVON. There are special rockeries devoted to Ferns, Sempervivums, Primulas, &c., and in others the floras of the Alps, the Pyrenees, the Cevennes, the Caucasus, and even of extra European mountain districts, like the Himalayas and the Andes, and the mountains of Tasmania, are illustrated by examples.

It is proposed to increase the utility of the garden by the erection of a workroom—laboratory is too grand a name—where microscopes and botanical appliances for the use of students may be found. The Linnaea is reached from Martigny in five to six hours, following the route to the great St. Bernard. It is placed at a height of 1,700 mètres. Plantations or natural groups of Larches and Pinus Cembra afford shelter, and add to the picturesqueness of the scene.

It is evident that a garden so placed and conducted on comprehensive principles will be of great value to horticulturists and to botanists. The expenses of the establishment are very small, and the number of subscribers much less than the importance of the establishment demands.

The Royal Horticultural Society.

ANOTHER week has past, and we are still without any authentic information as to the new programme of the Royal Horticultural Society. There may be good reasons for this reticence, but if so, there is the greater cause for not accepting the result of the annual meeting as final. It does not require much thought to arrive at the conclusion that proposals of such magnitude must necessarily occupy much time for their due consideration, and that the consequent negotiations must also be time-absorbing. The Council will doubtless feel it incumbent on them to take the Fellows into their confidence, and not take the approval of the annual report as a mandate to carry out works of such magnitude and importance without the express sanction of the Fellows.

It is natural enough that the Centenary of the Society should be duly commemorated, and four years is not too long in advance for some of the proposals that have been made. The

formation of a new garden at a distance from London is one proposal, and this is strengthened by the circumstance that the lease of Chiswick has only a few years to run—how many we do not exactly know. In these circumstances the Council has to consider whether they will dispense with a garden in future, or whether they will procure one in another situation. They have decided in principle that they will obtain a new trial-ground, and in so far, but no further, as we take it, they have received the mandate of the Fellows. The Fellows present at the annual meeting could never have had the idea of pledging the Society generally to the details of this, or indeed of any other scheme, particulars of which were, probably of necessity, not laid before them. It is not possible to form any adequate idea of schemes that may be unexceptionable, but which are still mainly visionary. We can only wait for fuller knowledge; but in the meantime we must take exception to the notion which seems to be adopted by some, that the Fellows are pledged by the results of the annual meeting. The proper course is for the Council to mention what suggestions they have received, and to formulate the proposal they consider best, and when they are ready to do so, lay it in detail before the Fellows and act in accordance with their finding.

THE authorities of the Royal Plant Names. Gardens, Kew, have conferred

an immense boon on horticulturists by the preparation and publication of a list of garden names of plants introduced between 1876 and 1896.* The list published in our own columns, including the period from 1841 to 1878 was published in detached fragments at irregular intervals, and was avowedly a select list only, of which but a few completed sets were issued. Nevertheless, it may now be said that with its aid we have a fairly complete list from 1841 almost to the present time of the most important plants, besides the numerous scattered lists given from time to time in these columns and in those of our contemporaries.

A similar more or less complete publication has been made in the *Journal of Botany*, in the *Gardeners' Year-Book*, and in other periodicals of like nature, and continued for some years; while the *Kew Bulletin* has latterly contained similar and more complete enumerations. The *Index Bibliographique* of MOREEN and DE VOS contains a complete list of plants described, figured, or introduced into Belgium from 1830 to 1880. The same plants, we may presume, found their way to this country. The catalogues of the gardens of Commander HANBURY of La Mortola, of M. BARBEY of Vallorbe, and of M. MICHEL of Geneva, may also be mentioned in this connection as useful lists of garden plants. To have these names brought together in a single volume is an enormous advantage, for which, as we have said, horticulturists owe a debt of gratitude to the authorities of the Royal Gardens. It is a large step towards the publication of a *Hortus Europæus*, in which the validity of the names could be established, and incorrect or provisional names eliminated.

The book before us is, however, professedly only a list of names. Many of these are mere garden-names applied by the introducers or the raisers without a thought of their botanical correctness or otherwise. Their "provisional" character is in many cases inevitable, as no means

* List of Published Names of Plants introduced to Cultivation 1876-1899 (*Kew Bulletin*, Additional, Series IV.) (Eyre & Spottiswoode. Price 4s.)

SUPPLEMENT TO THE "GARDENERS' CHRONICLE," MARCH 17, 1900.



THE ALLINGER ROCKERY IN THE LINNÆA GARDEN, NEAR THE GREAT ST. BERNARD, ALT. 2,500 FT.

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may exist at the time of introduction for the exact determination of particular subjects. Names thus given without botanical authorisation should always have the abbreviation "hort." affixed to them, to avoid confusion. It would be still better to avoid the use of Latin names altogether for such plants till their status is ascertained. On the other hand, where the plant has been botanically described or figured by some competent authority, the name of that authority should be given. Take, for instance, the scores of species described in these columns by REICHENBACH and other botanists, the names are mentioned, and the references are cited, but there is no indication in the Kew list to show that these are not merely garden names, but duly registered plants, such as a monographer would be bound to quote. As the reference is invariably given this is not a matter of great importance, as it only involves the necessity of turning up the reference, when the name and its author will be found.

In the *Index Kewensis* many merely provisional or catalogue names, published without botanical examination, and the descriptions of which were not cast in botanical form, are assigned to their presumed authors in spite of their being unsigned. In this way, species are attributed to individuals who in many cases, perhaps most, had nothing to do with the plants, and had not even seen them. While speaking of the monumental *Index Kewensis*, it may be mentioned that, although some garden names are inserted in that work, a very large number were excluded, because they lacked botanical significance. The record of these names, unless we are mistaken, is still preserved at Kew, and it would have added to the value of the present publication had they been inserted in it. As many of them must be identical with those now published, and would not require to be repeated, the additional bulk would not have been excessive.

The present volume goes far to supply what we have longed for—a complete list of cultivated plants, adapted for the use not so much of professed botanists, as for working horticulturists.

The number of names entered amounts to 7600; the actually new plants have been derived chiefly from Colombia, Malaya, and the Polynesian islands. It contains, it should be said, not only the names, but brief descriptions of the plants.

The orders most largely represented are Orchidaceæ, Liliaceæ, and Araceæ—an indication of the taste of the day in matters horticultural. We cite some additional figures, which further illustrate the trend of modern plant-collecting. Of *Odontoglossum* there are about 350 entries, and of other genera the numbers are as follows:—*Cypripedium*, 350; *Cattleya*, 250; *Dendrobium*, 220; *Lælia*, 160; *Masdevallia*, 150; *Oncidium*, 120; *Croton* and *Iris*, each 100. These numbers include not only recognised species, but hybrids and cross-breeds. As an illustration of the manner in which the book has been compiled, we add the reference relating to—

"*BERBERIS THUNBERGI* (B. M., t. 6646), H. [hardy].—A species of dwarf bushy habit; spines, simple; L. [leaves], tufted, $\frac{1}{2}$ –1 in. long, spatulate obovate entire; Fl., solitary pendulous; pale yellow, tinged with red. Japan."

To make this complete, the name of the author and the date of publication should have been added. But the illustration will confirm our statement that this book is of the utmost value to horticulturists, and a great aid to botanists.

LINNEAN SOCIETY.—A meeting of this society was held on Thursday last, March 15, at 8 P.M., when the following papers were read:—Mr. W. B. HEMSLEY, F.R.S., F.L.S., and others: "Report on the Botanical Results of an Expedition to Mount Roraima in British Guiana, undertaken in 1898 by Messrs. F. V. McCONNELL and J. J. QUELOH." Mr. A. W. WATERS, F.L.S.: "Bryozoa from Franz-Josef Land, collected by the Jackson-Harmsworth Expedition, 1896–97." Exhibition—Professor J. B. FARMER, M.A., F.L.S.: *Lantern-slides of Flowers*. (Postponed from last meeting.)

ROSE SHOW FIXTURES IN 1900.—Mr. EDWD. MAWLEY, Rosebank, Berkhamsted, Herts, has kindly furnished the following dates of Rose shows to be held in the current year:—June 27 (Wednesday), Salisbury (N.R.S.), and Richmond, Surrey (two days); June 28 (Thursday), Canterbury; June 30 (Saturday), Windsor. July 3 (Tuesday), Gloucester, Harrow, and Sutton; July 4 (Wednesday), Croydon, Hereford, and Reigate; July 5 (Thursday), Bath and Norwich; July 7 (Saturday), Crystal Palace (N.R.S.); July 10 (Tuesday), Wolverhampton (three days); July 12 (Thursday), Brentwood, Eltham, and Salterhebble; July 18 (Wednesday), Cardiff (two days); July 19 (Thursday), Birmingham (N.R.S.), and Helensburgh; July 24 (Tuesday), Tibshelf. Mr. MAWLEY will be glad to receive the dates of any other Rose shows (or horticultural exhibitions in which Roses form a leading feature) for the next list of Rose show fixtures which will appear early in April.

DAHLIA SHOW AT THE ROYAL AQUARIUM.—An exhibition of Dahlias on much the lines of that held last summer will take place at the Royal Aquarium on September 18 and two following days. A sum of nearly £30 is offered in prizes, a portion of which has been subscribed by the Directors of the Royal Aquarium, and the remainder by private subscription. Two main objects are sought by the establishment of this show: one is to provide an exhibition of Dahlias in central London, the other to afford a convenient opportunity for a further exhibition of seedling Dahlias. The Aquarium show will be supplemental to, and not in any way antagonistic to the exhibition of the National Dahlia Society at the Crystal Palace on September 7, as all the donors to the prize fund are members of the National Dahlia Society. Schedules of prizes can be obtained of the superintendent, Mr. RICHARD DEAN, 42, Ranelagh Road, Ealing, W.

THE SHROPSHIRE HORTICULTURAL SOCIETY.—We have received a schedule of the prizes to be offered at Shrewsbury by this Society during the present year. The first show will be held on April 4, and although this event is chiefly of local interest, there will be thirty-eight classes for plants and flowers. The great summer show, as we have already announced, has been fixed for August 22 and 23. The prizes to be offered then are of the usual liberal character, and amount to about £1000. We do not discover any important alterations in the classes for plants, or those for cut flowers. There will be two large group classes, the 1st prize for each of which will be £25. An equal sum is offered as 1st prize for an exhibit of twenty stove and greenhouse plants, and £20 for an exhibit of thirty stove or greenhouse plants (Orchids excluded) in pots not exceeding 10 inches. The classes for cut flowers are very numerous, and include one for an exhibit of bouquets on a space of 10 ft. by 5 ft., for which prizes are offered of £15, £12 10s., and £10. In the fruit section, in place of the Champion Grape class of last year, there is to a Champion Fruit Class. The exhibits are to consist of twenty-four dishes of British-grown fruit, and each exhibit will be given a space of 10 feet by 4 feet 6 inches. Pines, Currants, Gooseberries, Raspberries, Strawberries, and Bananas, are not invited, but we suppose, with the exception of Pines, may be shown at the discretion of the

exhibitor. The maximum points to be awarded for Grapes, Melons, Peaches, Nectarines, Pears, Apples, Figs, Apricots, Plums and Cherries, are published in the schedule. Each collection of fruit must be decorated with non-flowering plants, loose foliage, or cut flowers, but the quality or otherwise of the decorations will not influence in any degree the awards of prizes for fruit. The fruit prizes, which are £25, £20, £15, and £10, will very properly be awarded to the collections that show highest cultural merit. But there are three extra prizes of £3, £2, and £1, which will be gained by the decorations exclusively. Thus there are two competitions in the one class. The same arrangement has been made in the cases for smaller collections of fruit—twelve dishes, and nine dishes. All collections have now to be decorated, but the fruit in every case will be judged on its own merits only. This appears to be a very satisfactory way of settling the question. It will secure that exhibits of fruit will be displayed in such a manner as may be expected to please visitors, and at the same time will prevent the award of prizes that have been offered for the finest fruit to a collection of second best fruits because they are faultlessly staged. The class for a table of fruits arranged for dessert will be continued on the same principle as last year. The classes for vegetables include special prizes from most of the large seedsmen, in addition to those given by the Society. Independently of the cottager's section, this interesting schedule includes 199 classes. The Hon. Secs. are Messrs. ADRIATT & NAUNTON, The Square, Shrewsbury.

TOWN PLANTING IN GERMANY AND HOLLAND.—In *La Semaine Horticole* is quoted a list of the sums granted by the public bodies in 1898, for furnishing parks and plantations in Germany. These figures show the progress of horticulture in the country. The amounts in marks or shillings are as follows:—Berlin, 302,582; Hamburg, 179,000; Breslau, 169,600; Cologne, 107,497; Magdeburg, 96,500; Munich, 84,300; Frankfurt, 79,380; Leipzig, 73,622; Dresden, 61,200; and Hanover, 59,150 marks. This amounts to a sum reckoned in pfenniges (a pfennig is worth less than half a farthing) per inhabitant of:—for Breslau, 46; Magdeburg, 45; Frankfurt, 35; Cologne, 33; Hamburg, 29; Hanover, 28; Munich, 21; Dresden, Leipzig, and Berlin, eighteen pfennigs for each city. In the cities of Holland the expenditure the same year was as follows in florins (1s. 8d.):—Amsterdam, 60,750; The Hague, 37,400; Rotterdam, 30,900; Utrecht, 21,275; Arnhem, 13,000; Nimeguen, 12,952; Groningen, 12,040; Haarlem, 10,660 florins; making a sum, for each individual, of:—for Amsterdam, 12 cents; The Hague, 19; Rotterdam, 10; Utrecht, 22; Arnhem, 23; Nimeguen, 31; Groningen, 18; and Haarlem sixteen cents.

FRUIT FROM THE CAPE.—Since our last report, the steamships *Dunottar Castle* and *Moor*, of the Castle and Union Lines, have arrived from the Cape, the former bringing 621 boxes of Plums, 176 of Peaches, 190 of Grapes, 37 of Nectarines, and 34 of Pears: total, 1054 boxes. Of Plums, most were sold privately at Covent Garden. The fruit was in good condition, but prices were low, owing to large arrivals; fine qualities realised 8s. to 9s. per box. Of Peaches, mostly in good condition, although the quality varied very much, the best realising 14s. per box. Grapes were in good condition, and sold quickly at fair prices; the best prices were 18s. per box. Nectarines were large and good-looking, but not thoroughly ripe; fair prices were obtained for them. Pears were in good condition, but not fine enough fruit to obtain the top prices. There is a good market for large and ripe Pears. The *Moor* brought 497 boxes of Plums, 181 of Peaches, 280 of Grapes, 143 of Pears, and 11 of Nectarines—total, 1112 boxes. Plums were an over-supply, and cannot be considered the same sort of table luxury as Peaches or Nectarines, and are not sought after by west-end houses so much as Grapes are. Those put on the market were in good condition; a few boxes of

the very best Kelsey Plums fetched 9s. a box; others sold at low prices. Peaches were in good condition, and fetched moderate prices. Grapes were in fair condition, 19s. a box being obtained for the best—mostly the variety Hermitage. The Pears were in good condition, quite ripe, but rather small; the best fetched 8s. per box. Nectarines were in fair condition, and quickly sold at good prices; 14s. per box for the best. The whole of the fruit seems to have been carried by the steamers in capital condition, and the merchants here seem well satisfied.

STOCK-TAKING: FEBRUARY.—The national stock-taking having just been closed, the balance-sheet drawn up and passed, we may briefly refer to what is the basis of the account for very much of all yearly stock-taking—the "Trade and Navigation Returns," and now relating to the encouraging figures for the past month. Astonishing as these are, we can but hope considering our liabilities, that they but prelude greater records in the months to follow. The imports for last month foot up at £37,604,808, against £35,589,109—an increase of £2,065,699. The following are our usual extracts from the "summary" table:—

IMPORTS.	1899.	1900.	Difference.
	£	£	£
Total value ...	35,589,109	37,604,808	+2,065,699
(A.) Articles of food and drink—duty free ...	11,015,431	11,061,019	—89,412
(B.) Articles of food & drink—dutiable	1,821,205	2,014,282	+193,077
Raw materials for textile manufactures ...	6,228,434	7,810,065	+1,582,531
Raw materials for sundry industries and manufactures	2,026,154	3,556,351	+1,530,197
(A.) Miscellaneous articles ...	1,312,992	1,303,107	—9,885
(B.) Parcel Post ...	95,027	89,892	—5,635

At this season of the year the returns relating to fruits, roots, and vegetables are of more than usual interest—the figures and values for the past month are as follows:—

IMPORTS.	1899.	1900.	Difference.
	Bushels.	Cwt.	Value.
Fruits, raw:—			£.
Apples ...	308,225	169,729	—4,317
Apricots and Peaches	.....	56	+277
Bananas... bunches	.....	89,400	+88,500
Grapes ...	1,859	637	—1,099
Lemons ...	75,748	109,045	+20,172
Nuts—Almonds (cwt.)	5,005	6,232	+5,172
" others, used as fruit (value) ...	.....	£18,327	—5,770
Oranges ...	1,272,695	778,738	—11,492
Pears ...	2,808	1,192	—25
Plums ...	439	158	—294
Unenumerated... ..	59,636	4,681	—19,238
Vegetables, raw:—			
Onions ... bush.	569,654	619,005	—8,567
Potatoes ... cwt.	62,787	328,268	+40,945
Tomatoes ... ..	.....	38,420	+34,897
Vegetables, raw, unenumerated... .. value	£92,753	£33,748	—59,010

We may add, that California promises to compete for the supply of high-class Asparagus for the English market; it has a long way to travel, but they have done some good work in the way of transporting tender fruit by the aid of the cool chamber. The value of the imports for the past two months we may add is £82,160,722, against £76,755,715—or an increase of £5,405,007—truly, a step forward. Coming now to the—

EXPORTS.

we find a still more satisfactory record. The total for the month is £23,219,849, against £19,382,406 for February, 1899—an increase of £3,837,443. The increase is distributed over all the sections.

Altogether, the export division of trade shows a most healthy condition of things. The figures for the past two months foot up at £46,803,531, as against £39,729,640 in 1899—an increase of £7,073,891.

TREE PLANTING-IN ON CROWN LANDS IN WALES.—Her Majesty's Commissioners for Woods and Forests have again placed their order for extending their plantation on Crown Property, Wales, in the hands of Messrs. WM. CLIBRAN & SON, under the superintendence of Mr. LEWIS, of Arthog.

PLANTS FOR STUDY.—According to *Nature* for March 1, 1900, Messrs. JAMES BACKHOUSE & SON, Ltd., of York, have inaugurated a new department in their nurseries, which may be of great service to botanical lecturers and demonstrators, in providing a supply of material especially for microscopic work. They have issued an extensive priced catalogue, comprising objects in the Myxomycetes, Algæ (including diatoms), Characeæ, Fungi, Hepaticæ, Musci, Pteridophyta (prothallia and vegetative organs), Gymnosperms, and all the more important orders of Angiosperms. The



FIG. 54.—IRIS DANFORDIÆ.

department is under the management of an experienced practical botanist, Dr. ARTHUR H. BURTT, and seems likely to supply a long-felt want. Considering the lack of knowledge of plants, and their relationship one to the other, which is characteristic of the times, it would be well if Messrs. BACKHOUSE would increase the supply during the season of illustrations of the principal natural orders; these would be of great value to medical students and to young gardeners.

THE LATE JOHN FRASER, of Lea Bridge Nurseries, who was one of the founders of the United Horticultural Provident and Benefit Society, was also its first treasurer. At the annual meeting of the society (see p. 175) the following motion was adopted unanimously on the proposition of another of the society's first supporters, Mr. W. MARSHALL, Chairman of the Floral Committee of the Royal Horticultural Society: "That the members . . . at their annual meeting . . . desire to record their appreciation of the inestimable services rendered to the fund by the late Mr. JOHN FRASER as first Treasurer on the formation of the Society, and hereby tender their sincere condolences to his family for the irreparable loss they have sustained."

IRIS DANFORDIÆ AND I. STENO-PHYLLA.

THESE are two species of bulbous Iris allied to *I. reticulata* and *persica*, of which one is quite new and of the other a good supply of bulbs has now been brought to this country for the first time. They were both exhibited in flower by Mr. Wallace, of Colchester, at the last show of the Royal Horticultural Society.

I. Danfordiæ (fig. 54) was discovered by Mrs. Danford on the Cilician Taurus in the spring of 1876, growing not far from the melting snow at a height of 6000 feet above sea-level, and it has since been collected by Bornmüller in Amasia. The leaves are very narrow, short at the time of flowering, but as in *I. reticulata*, growing out to a considerable length after the flower fades. The flower springs from the surface of the ground, and has a long slender tube. The limb is about 1½ in. long; the inner segments are entirely suppressed, and the outer have a long claw and a small reflexing orbicular, yellow blade, with spots of black at the base, extending down the claw. The style-branches are also yellow with large crests, which reach to the tip of the perianth segments. It has been called *I. Bornmülleri* by Hausknecht, and *I. amasiana* by Bornmüller. It was figured at tab. 7410 of the *Botanical Magazine* from plants in the Royal Gardens, Kew, in 1890.

Iris stenophylla (fig. 55, p. 171), which was discovered by Siehe in the Cilician Taurus in 1895-6, has never been previously figured or described so far as we are aware. The name *stenophylla* was given to it by Hausknecht, and it has also been called *I. Heldreichi*. It has a tuft of five or six linear leaves deeply channelled down the face, short and stiffly erect at the flowering season. The flower springs from the surface of the ground, and the long tube is lightly wrapped round by the imbricated, lanceolate spathe-valves; the outer segments of the perianth are a couple of inches long, with a reflexing blade about as long as the claw, blackish-blue towards the tip, and with many black spots on a pale ground below it. The inner segments are small, and spread horizontally. The style-branches are lilac, with very large crests, which reach nearly to the tip of the perianth. Its nearest alliance is with *I. persica*. A coloured figure and full description will appear shortly in the *Botanical Magazine*. J. G. Baker.

THE WEATHER IN WEST HERTS.

THE weather remained with scarcely any alteration as regards temperature until the 9th, but since then, although the night readings have changed but little, the days have been decidedly warmer. On the coldest night the exposed thermometer showed only 6° of frost. Both at 1 foot, and 2 feet deep the soil is now about 1° warmer than is seasonable. No rain at all has fallen for nearly ten days. The winds have been very light, and entirely from some northerly or easterly point of the compass. The average rate of movement of the air at 30 feet above the ground during the seven days ending the 8th, was less than two miles an hour, and in no hour rose to eight miles. The same seven days were also extremely gloomy, as the sun shone for only three hours altogether during that week. The first *Chionodoxa Luciliæ* came into flower in the spot under observation in my garden on the 12th, which is four days later than its average date in the previous twelve years, and later than in any of those years since 1895. E. M., Berkhamsted, March 13.

CULTURAL MEMORANDA.

CALADIUMS.

THOSE tubers which have been kept dry in a warm house, should be shook out and repotted in small pots, to be again repotted later on. Afford water sparingly till roots form, and place the pots

in a moist stove or Melon-house, dewing them twice daily with a fine-rose water-pot. When the leaves begin to form afford full light, and shading thinly when the sun is very bright. The first potting may be with a light, sandy soil, but at the second one turfy-loam in a rough state, a small quantity of dried cow-dung or rotten manure, together with a few small lumps of charcoal, and plenty of sharp sand should be used. Peat too may be added to the compost with good results. Although the tubers will winter well in the pots in which they grew, I prefer to shake them out when the foliage is dead, and layer them in large pots with dry sand, the

GLORIOSA SUPERBA.

These bulbs should now have the exhausted soil shaken from them and be repotted, and then placed in a moist stove. The best sort of soil for the plants is a light porous loam and fibrous peat, not too finely broken up, in equal proportions, and some charcoal and road-grit; the pots should be well drained. From three to five strong bulbs may be placed in 12 to 14-inch pots after three-parts filling the pots; this will give ample room for a top-dressing when some amount of growth has been made. Not much water should be afforded till the pots begin to fill with roots, and

after having been out over, if the pots are plunged in a little bottom-heat, the plants soon begin to grow again, and are more satisfactory than new seedlings. Cultivated in pots, Sweet Basil succeeds better than when grown in boxes, as it is not so liable to damp off, and can be more conveniently brought near to the light. H. H. T.

RAINFALL AT BELVOIR CASTLE, LEICESTER, AND BELVEDERE HOUSE, WEST MEATH.

I ENCLOSE you two readings of the rain-gauge in order that the readers of the *Gardeners' Chronicle* may compare them, one at Belvoir Castle, and the other at Belvedere House, Westmeath, Ireland. Belvoir is on the clay in a position very similar to my own position, on the Central Limestone Plain of Ireland. The curious point is, that while my rainfall is 15 inches more than that at Belvoir, the number of days in which rain fell was only six more in Ireland. There is, however, considerable difference in the character of the vegetation in the two places. Mine is more luxuriant, although I am 100 feet higher above sea level. But I cannot ripen fruit as it is done at Belvoir. Primroses cover my park in the spring, and they grow very sparingly at Belvoir Castle; while many tender plants, which succeed in Leicestershire, I cannot manage, although my climate is supposed to be a milder one. The fact is, gardeners do not pay sufficient attention to the atmospheric conditions surrounding them. A few miles may make all the difference in the world. The habit of classing plants in catalogues as "hardy and tender" is most delusive, so called hardy plants will fail when so called tender ones will succeed. Successful gardening requires the most careful examination of soil, position, and prevailing winds; and if plants come from another land, an accurate knowledge of the conditions under which they grow in a state of nature. O. Brinsley Marlay, St. Katherine's Lodge, Regents Park, N.W.

Rainfall in 1899 at Belvoir Castle (Garden), county of Leicester:—Rain-gauge: diameter of funnel, 8 inches; height of top above ground, 1 foot; above sea-level, 260 feet.

Month.	Total depth.	Greatest fall in 24 hours.		Number of Days on which '01 or more fell.
	Inches.	Depth.	Date.	
January	2.70	0.53	21	22
February	1.19	0.31	15	12
March	0.59	0.20	30	10
April	2.09	0.28	13	23
May	3.50	0.69	23	14
June	1.04	0.35	10	9
July	1.79	0.43	7	12
August	0.83	0.35	15	
September	2.63	0.77	29	
October	2.73	0.98	1	
November	1.46	0.29	7	
December	1.98	0.46	23	15
Total	22.04	...	...	172

W. H. DIVERS.

Rainfall in 1899 at Belvedere, county of West Meath:—Rain-gauge: diameter of funnel, 5 inches; height of top above ground, 1 foot; above sea-level, 367 feet.

Month.	Total Depth.	Greatest Fall in 24 hours.		Number of Days on which '01 or more fell.
	Inches.	Depth.	Date.	
January	4.92	.60	17	21
February	2.60	.49	17	15
March	1.57	.33	28	13
April	3.10	.49	25	20
May	3.75	1.10	17	13
June	3.05	1.01	17	11
July	2.75	.59	10	13
August	2.57	.62	5	13
September	3.04	.62	21	17
October	1.46	.42	11	11
November	2.50	.65	3	12
December	5.86	.93	19	21
Total	37.19	...	...	180

JAMES BAYLESS



FIG. 55.—IRIS STENOPHYLLA. (SEE P. 170.)

pots taking up but little room, and they may be stood out of the way in a house having a temperature that does not fall below 60°.

GARDENIAS.

Cuttings struck and potted early in the month of January will now require repotting, and to be placed in a brisk moist heat. The plants should not be checked in their growth, as they are long in making a fresh start. Young plants should be encouraged to make strong, robust growth, applying water liberally when the soil is getting dry, and affording artificial manure and clear soot-water in small doses at weekly intervals. The points of the leading shoots should be stopped twice, if this be done more often the flowers come small. The best kind of soil for the plants is roughish peat and fibrous-loam, with small lumps of charcoal and plenty of sharp sand; pot firmly, and leave ample space for affording water.

afterwards water may be freely applied, and at intervals clear soot-water, liquid-manure, or some kind of artificial manure; train the shoot to a trellis placed near the roof-glass. H. Markham. Wrotham Park, Barnet.

SWEET BASIL.

This herb, *Ocimum basilicum*, whose aromatic leaves is used as a flavouring for soups, &c., though not difficult to grow, is costly to purchase, and not easy to obtain. If by chance the gardener should fail to meet the demand for it, a good method of culture is to prepare about sixty 6-inch pots in September, and prick off into each of these a dozen or so of seedlings taken from the seed-pans. These become well established before the winter sets in—an important point, for late seedlings will not develop into satisfactory plants. Placed in a light, warm house, on a shelf near to the glass, they grow strong, and remain sturdy. When this is the case,



HOME CORRESPONDENCE.

AN EASY METHOD OF APPLYING SULPHUR TO PLANTS.—Procure some sulphur wicks, such as are used by coopers for purifying barrels and vats; there are larger and smaller sizes of them. Put the wick in a cleft stick, light it, and walk through the glasshouse. A person walking fast will ensure a light fumigation; slower walking, or a second round will afford a stronger fumigation. Whilst doing this, the wick will let fall small drops of burning sulphur, but these are very small, and have never been found to hurt growth on Vines, Peaches, Tomatoes, Carnations, Roses, Callas, Smilax, or Asparagus. Of course, just as for everything else, a trial on a limited space should be made when first experimenting. Up to the present time we have not used it on Vines with berries just set, these being very sensitive to sulphur-fumes in general. Of course, heavier doses than a man can endure cannot be applied, but the process is so easy, so quickly applied, that it can be repeated as often as may be desirable. We have done it twice a day. Be careful to light and to blow out the wick outside of the glasshouse. *Heleneveldt.*

THE ELM-BARK BEETLE.—I notice in the *Gardeners' Chronicle* of February 24, some remarks regarding this beetle (*Scolytus destructor*), made at the meeting of the Royal Horticultural Society's Scientific Committee, on February 13, by Mr. McLachlan. Having made this beetle a special study for several years, I can confidently assert that it never attacks trees which have the least vestige of vigour about them, and that, as Mr. McLachlan believes, it is rather a scavenger than an enemy to standing timber. I have frequently noticed Elms which have had a portion of the bark of their trunks or large branches destroyed by lightning or other causes, and on such portions the beetle will breed, but always ceases to bore into the adjoining healthy bark. It is true that the bark must be still fresh to receive attention from the mother beetle, and there are plenty of instances of living trees being attacked, but I have never seen or heard of a case of healthy specimens being injured by it. One of the principal reasons for this is the fact that at the time the mother galleries are commenced (May), a boring made in the bark of a healthy tree is at once filled with sap, and the work of the beetle put a stop to. *A. O. Forbes, Calne, Wilts.*

PROTECTING PEACH BLOOM.—Although I hesitate to differ from so eminent an authority as "D. T. F.," I am glad to see that he agrees with me upon some points, while differing upon others. The plan which I adopt relates only to the Peach and Nectarine. Peaches, Plums, and Cherries, are usually on the more shady side of the wall; and the young wood of the Pear, as everyone knows, unless wanted for extension, is removed at the winter pruning, and the trees are not so liable to be hurried into flower as the Peach, Nectarine, &c., which are, or should be, on the warmest aspect. If Peaches and Nectarines could be planted where Pears, &c., flourish, the need of keeping cool or of protection would not arise, because their sunless position would retard the flowering period till all danger from frost was past. If a position be taken at one end of the wall, it can readily be seen that even a single thickness of fish-netting affords some amount of protection, especially against the keen winds that prevail in the months of March and April. I find no evil results by pruning early, although it is usual for gardeners to defer the pruning of their Peach and Nectarine-trees till the last. I claim no other advantage than that it assists in the forwarding of the work, and less time is required in finishing them off; the trees being in proper training, and the man being in touch with his work can at a glance see what quantity of wood is required to cover the space at command,

and what he may remove. With regard to releasing all the trees from the wall, and tying them to stakes at some distance from the wall, I found that to answer admirably in a former place I had charge of near East Barnet, fourteen years ago, the walls there being little more than 7 feet high, and the trees young. It would, however, be a more difficult matter with large trees, and a wall 10 or 12 feet high; and unless the object is to cleanse the trees, or point the brickwork, or to entirely train the trees anew, my plan answers well, the new method having superseded the old. *W. H. Sharpe, High-wood Gardens, Rothampton.*

HORTICULTURE AT GLASGOW EXHIBITION.—Almost every conceivable subject is to be represented at the great exhibition in Glasgow next year, and arrangements have been made for some time back by the various sections; but I have not learnt that horticulture has been included. At the last Glasgow exhibition it was represented by one or two flower shows; these, however, were included among "amusements." Can any of your readers say if the horticulturists of Scotland, particularly those of Glasgow, have taken any steps to have horticulture properly represented at the forthcoming exhibition? *A Horticultural Secretary.*

PLANT-PESTS.—I recently paid a visit to Mr. McFadzean, gardener to Lord Massey, Killakee, and he volunteered the following formula as a cure for aphids, thrips, red-spider, &c., one which he uses extensively with perfect success, and which has done no harm to the foliage or wood of the plants, so far as he has tried it. Take half-a-pound of pearlash, and an equal weight of caustic soda, and dissolve them in 5 gallons of hot water. When the whole mixture is thoroughly dissolved, and has become cool, he employs it with a spraying-syringe on whatever plants require cleansing. He told me that it will kill red-spider, thrip, and destroy mildew. He is also of the opinion that if it could be got to adhere to Grape-vines it would destroy mealy-bug. For the eradication of mealy-bug, the preparation given above should have the addition of soft-soap. It would be advisable before practising it on an extensive scale to try it experimentally, and note the results. *A. O'N.*

PIECEMEAL EXTENSION OF VINE-BORDERS.—Late spring affords a suitable season for enlarging the width of Vine-borders which were intentionally made small at the time of the planting of the Vines. This is applicable to borders of which a width of only 3 feet out of the 9 or 12 feet of width allowed as the ultimate limits of the roots has been made up. Supposing the exhausted soil of the border to be done away with is still in its place, this should be excavated to the width of 3 feet back from the newly-made border, and about 2½ to 3 feet deep, i.e., 3 feet at the back and 2 feet at the front. Having cleared this space of soil and made the bottom smooth and sloping to an outlet drain, place brickbats, clinkers, or stones to the depth of 6 inches thereon, if the sub-soil be chalk or lime-stone; but if the soil overlies gravel, and the water-level is at a great depth, artificial drainage will not be required. A border ranging in depth from 2½ feet at the back, and 2½ feet at the front, will afford ample space for the roots. It is a good practice to place a layer of turf, grassy-side downwards, over the bottom or over the artificial drainage, and thus afford free passage for the water. In excavating the exhausted soil, all Vine-roots found should be cut back to the line dividing the made portion from the unmade section of the border. The trench is then ready for being filled with the best available soil, preferably turfy-loam which has been cut and stacked for a year, and one-quarter of old lime-rubble and horse-droppings. The turf should be broken up with a digging-fork or spade, the whole being well mixed before it is wheeled into the trench. Where these materials are not obtainable, the staple should be enriched with decayed manure that is free from worms, and with fresh soot, at the rate of 1 bushel to every cartload of soil and manure, and the whole mass turned over twice before being placed in the trench. I may here say that very tenacious clayey loams are not suited to the Vine, and should not be used. At the first, and frequently before giving water at the roots, dressings of artificial manure, may be applied during growth—that is, from May till September. Soot in itself is a strong fertiliser and purifier, and dressings applied at fortnightly intervals, and in

quantity sufficient to discolour the ground, to Vine and Peach borders when the fruit is swelling, and water applied to the soil forthwith, produce satisfactory results. Soot may be obtained at small cost in the neighbourhood of large towns, and fair samples may be bought in the rural districts at from 5d. to 6d. per bushel. These remarks are applicable to Peach-tree borders as well as Vine borders. *H. W. Ward.*

THE NEW CHISWICK.—It has been suggested in the columns of the *Herts Advertiser* that in the event of a new garden being secured by the Royal Horticultural Society in place of Chiswick, a good centre might be found in Hertfordshire. Mr. C. E. Pearson in your last issue refers to the question of railway competition, and in this connection may I suggest that no more convenient spot could be fixed upon than St. Albans. It is within half-an-hour's run from London, and possesses stations on three lines of railway—the Midland, the London & North Western, and the Great Northern. St. Albans also has many attractions, being an historical picturesque city; and its well-wooded environs make it a delightful place of residence. No more central or suitable spot could be found. *A. E. Gibbs, St. Albans.*

NEPENTHES AND LOW TEMPERATURES.—Recently I had the opportunity of looking round some greenhouses, and in one of the stoves my attention was drawn to a somewhat fine healthy plant of *Nepenthes Mastersiana*, which I was informed had been subjected to 5° of frost for several hours during the spell of severe weather we had some little time since; the heating apparatus having given way at the commencement of the frost. Up to the present time the plant does not appear to have suffered in the smallest degree, since both leaves and pitchers are not showing any signs of shrivelling. Many of the other stove-plants in the same house have either been killed outright or damaged past recovery. The above fact goes to prove that *N. Mastersiana* is much more hardy than generally thought. The crossing of the two old species, viz., *N. sanguinea* and *N. distillatoria* (Khasiana of science), the latter being the pollen plant, has produced a valuable variety that will stand a much lower temperature than the other kinds. *Albert E. Ratcliff.*

SAXIFRAGA PELTATA.—The illustration of *Saxifraga peltata* by the side of a stream in California (p. 139) reminds me of this plant growing in a somewhat similar position in Ireland. This is at Mount Usher, in County Wicklow, where the Messrs. Walpole have such a charming garden. The little river Vartry, which supplies Dublin with water, runs through the garden, and on one side, close to the water-edge, *Saxifraga peltata* is growing in a most vigorous manner. The most noteworthy thing about it is not the robust growth it makes, or its free flowering, but the way in which the great thick roots creep along and cling to the rocks in the bed of the river. The water is beautifully clear, and one can thus see the way in which the great rope-like rhizomes lay hold of the rock. In dry soil, this *Saxifraga* does very indifferently, and presents a vast difference from that growing where it has free access to water, as at Mount Usher. It is perfectly hardy in my garden, but it does not flourish in the dry soil. *S. Arnott, Carresthorn-by-Dumfries, N.B.*

YEW-TREES IN WARWICKSHIRE.—The lanes and neighbourhood here [Warwickshire] are exceedingly beautiful, most of them narrow, and canopied over by Oak, Ash, and Elm. Yew-trees and Holly are found plentifully, and evidently of great age, in the churchyards, by farm-houses and cottages, and also by the waysides. Topiary-work seems also to have its admirers in this neighbourhood. Not far from my house, there exists in the garden of a farmhouse a healthy, well-developed, and neatly-cut Yew-peacock, with fully-expanded tail; the dimensions of this live bird are 9 feet high, 8 feet long, and 7 feet wide. At the same place there also existed two more fancifully cut Yews; unfortunately, they grew just before the dining and drawing-room windows, which they darkened so much that the tenant obtained permission from his landlord to have them cut down. Instead of giving some admiring Goth in this line an opportunity of taking them away, they were ruthlessly grubbed up and burned! *W. Miller, Berkswell, Warwickshire.*

LAW NOTES.

OBTAINING GOODS BY FALSE PRETENCES.

At the York Assizes on Wednesday last, John William Taylor (36), vegetable salesman, was indicted for obtaining by false pretences from Messrs. Towler & Son, 2,500 Spruce Fir-trees, with intent to cheat and defraud at Aisakew, on December 8, 12, and 19. Mr. C. Mellor prosecuted, and Mr. Sawan Taylor defended. Prosecutors are seedsmen and nursery-gardeners at Bedale. It was alleged that prisoner, by letters and other means, represented himself to them as a man of substance carrying on a genuine business, and in a position to pay for any goods they might supply him with; by so doing he obtained from them the articles mentioned in the charge. His bill-heads represented that he was carrying on business as a fruit and vegetable salesman and commission agent in the Green Market, Newcastle-on-Tyne, whereas he had never sold in the Green Market at all. Messrs. Towler & Son had not been paid for the Fir-trees with which they supplied him. The jury found a verdict of guilty. Prisoner admitted a previous conviction for a similar offence. Sentence of twenty-one calendar months imprisonment with hard labour was passed.

Obituary.

WILLIAM HUGH GORRIE.—It is with regret that we have to record the decease of Mr. W. Hugh Gorrie, late gardener to Sir W. Hozier, Mauldslee Castle, Lanarkshire, on the 5th instant, aged 65 years, after a painful and protracted illness. Mr. Gorrie was well known in Scotland as a very successful gardener. His opportunities were great, and these he embraced with zeal, and in early life showed great talent as a cultivator.

Mr. Gorrie had a capital training under his father at Polmaise, near Stirling. After making the best of his time as journeyman, Mr. Gorrie went to Leichie, East Lothian, as foreman, and was in the same capacity for some years under the late Mr. Lee, in Tynninghame gardens. Thence he went as head gardener to the late Colonel Ferguson, Raith, Fifeshire. That proprietor being a great lover and liberal patron of gardening, Mr. Gorrie was able to turn his talents to good account in the fine gardens placed under his charge. Under his management horticulture at Raith attained an amount of success seldom equalled in the North, visitors going from long distances to see the decorative work, which was exemplified in the fine flower gardens year by year in a most striking manner. Mr. Gorrie was always treated by his employer as a trusted friend. After the death of the Colonel he left Raith (where ten years' service showed great skill), and went as gardener to Sir W. Hozier, where he remained for nearly thirty years. His services as a judge were much sought after at the large northern shows, and his decisions commanded great confidence. Mr. Gorrie has left a widow and grown-up family to mourn his loss. *M. Temple, Carron, N.B.*

GEORGE J. SYMONS.—We regret to announce the death of Mr. G. J. Symons, F.R.S., the eminent meteorologist, the founder of the British rainfall organisation. His death took place on Saturday afternoon at his house in Camden Square, N.W., after an illness of a little over three weeks. We extract from the *Times* the following particulars concerning his career:—

George James Symons was born in London in August, 1838. From his boyhood he exhibited a love of natural science, and it is said that he offered his services as an assistant at the age of sixteen to Mr. James Glaisher, who, however, attempted to dissuade him from pursuing scientific investigation on the ground that it did not pay. Symons, nevertheless, persisted in his aim. At the age of eighteen he joined the Meteorological Society, which Mr. Glaisher had founded, and in the course of another

twelve months found employment as one of the Registrar-General's meteorological reporters, an office which he continued to hold to the time of his death. In addition to his official duties, Mr. Symons was already collecting records of the fall of rain. He foresaw the importance of a study of the rainfall in view of the increasing demand upon the water resources of the kingdom, necessitated by the growth of population, improved and more systematic sanitation, and the additional demands of growing industries. In 1860 he published his first annual volume of the *British Rainfall*, which contained records from 168 stations—namely, 163 in England and five in Wales, there being none for Scotland or Ireland. With persistent energy he continued for forty years to develop this unique organisation of voluntary observers. His last published *British Rainfall*, for 1898, contained records from 2,545 stations in England, 237 in Wales, 436 in Scotland, and 186 in Ireland—a total of 3,404 stations. In 1866 he began the publication of *Symons' Monthly Meteorological Magazine*, which has been continued up to the present time. It is claimed for him that at the time of his death he was the head of one of the largest purely volunteer organisations in existence, having over 3,000 observers in all parts of the kingdom. His annual digest of their records is a standard work in which not only meteorologists but civil engineers, sanitary experts, and others place unquestioning confidence.

He was among the first to perceive in this connection the necessity of determining the amount and distribution of the water supply. His first step was to ascertain what records of rainfall were already in existence. These he found to be very much scattered; while some parts of the country were more or less covered, other very large districts were entirely without them, and such records as there were related to varying periods of time, and could not be correlated. This was the cause of his setting to work to organise a band of observers who would undertake to observe the amount of the rainfall each day, using tested gauges satisfactorily exposed, and capable of giving accurate results. The need of precautions to ensure these conditions was apparent to all as soon as they were put into practice, for the data already in existence were proved to be frequently valueless. One gauge was discovered which had been ornamented with a small roof to protect it from the rain, which it was its purpose to measure. Others were placed where water could drip into them from overhanging trees, and so forth. Mr. Symons visited personally and tested every gauge. The proper distribution of the gauges over the kingdom was also part of his task. Private individuals were induced to take up the work, procure gauges at their own cost, and make the observations methodically from no motive but the public good. The result of these labours has been the accumulation of a mass of data such as exists in no other country, and which is now available for use in connection with a variety of questions relating to the sanitary and hygienic needs of the country. Mr. Symons told of one case in which a municipality was put to the expense of many thousands of pounds in rectifying a blunder in the calculation of the water available from a selected area, the mistake being due to the fact that a rod had been left projecting over the single gauge which formed the basis of the calculations, and that the rain dripping from the rod into the gauge was responsible for the district being credited with an absurdly exaggerated capacity for supplying water.

The use of lightning conductors was another matter in which he took interest. The existence of the "thunderbolt" was another subject of Mr. Symons's characteristically persistent attention. Whenever and wherever such a phenomenon was said to have been seen, Mr. Symons, if it was at all possible, himself visited the spot and investigated the evidence, with the invariable result that he could get no proof of an electric meteor having existed.

The council of the Society of Arts in 1897 awarded him the Albert Medal "for services he rendered to the United Kingdom by affording to engineers engaged in the water supply and the sewage of towns a trustworthy base for their work, by establishing and carrying on during nearly forty years systematic observations (now at over 3000 stations) of the rainfall of the British Isles, and by recording, tabulating, and graphically indicating the results of these observations in the annual volumes published by himself."

EDWARD JOSEPH LOWE.—We regret to record the decease of Mr. Edward Joseph Lowe, on Saturday, the 10th inst., at his residence, Shirenewton Hall, near Chepstow, in his seventy-fifth year. By his death we lose a man whose name has been before the public for fully half a century as an active worker in varied branches of science, and who leaves behind him as solid evidences of his work a host of beautiful volumes and smaller publications in which are depicted and described an enormous number of decorative foliage plants (beautiful-leaved plants); *Ferns: British and Exotic* (twelve volumes in all); *British Grasses, &c.*, while we have reason to believe a mass of material has been collected for the purpose of a further issue. Mr. Lowe was elected F.R.S. in 1867, F.R.A.S. in 1848, F.Roy.Met.Soc., of which he was one of the founders, in 1850; F.G.S. in 1853, and F.L.S. in 1857; and was also a member of the Conchological and other societies, to which numerous papers were contributed by him. Mr. Lowe was one of those fortunate men whose means enable them to pursue their hobbies without let or hindrance. Owner of a beautiful estate overlooking the Bristol Channel, he devoted himself to biological experiment of all sorts in connection both with the animal and vegetable kingdom, and consequently, odd breeds of cattle, or at any rate, odd and curious examples of cross-breeding, and strange facts and theories exemplified in pigs, sheep, and fowls, vied with a thousand odd forms of Ferns and flowers, to enchain the visitor's attention, and puzzle him with biological problems. At every yard in the garden something *outré*, or something exceptionally charming in the Fern-line, invoked attention; frames and glasshouses teemed with choice and sometimes unique varieties, and every now and again, a bed of spore-raised Hart-tongues would serve to illustrate Mr. Lowe's favourite theme of multiple parentage. Certain it is, that the expert eye could detect the features of several plants, but the crucial question of how far these were derived from grandparents, or even great-grandparents, could never be definitely settled, and now it is certain never will.

Mr. Lowe's splendid contribution to the Fern exhibitions at Chiswick in 1890 and 1892 will never be forgotten, and is hardly likely to be equalled for some time to come; and his loss, as one of the pioneers of British Fern-culture, and as a chronicler of varietal forms of Ferns, is irreparable. *C. T. D.*

SOCIETIES.

ROYAL HORTICULTURAL.

MARCH 13.—There was a large display of exhibits at the fortnightly meeting of the Committees of this Society held on Tuesday last in the Drill Hall, James Street, Westminster. But though the hall was better filled than at any previous meeting this year, there were not many novelties shown, exclusive of Orchids. The Floral Committee, for instance, recommended one Award of Merit only, and that to *Pentstemon serpens*, exhibited by Mr. J. T. BENNETT-POW, who appears to possess quite a collection of interesting old-fashioned plants that are rare in gardens.

The Fruit and Vegetable Committee was exceptionally well attended, but all the awards it issued was a Cultural Commendation in respect to a dish of Dumelow's Seedling Apple, from the Duke of Richmond's garden.

The Orchid Committee recommended the award of a First-class Certificate to *Odontoglossum elegans*, Eastwood Park variety, from Baron SCHRODER, and of four Awards of Merit, two of which were for *Laelia Jonghiana* and a variety,

and the others for *Dendrobium Burberryanum* and *Odontoglossum crispum* "Surprise."

But if the Floral Committee had few novelties to consider, there were numerous groups to inspect, and nine Medals were awarded. Some of the more important were *Cyclamen*, Chinese *Primulas*, Hardy *Azaleas*, *Ferns*, *Prunus*, *Cinerarias*, *Hyacinths*, *Narcissus*, &c.

The Narcissus Committee met, but had very little to inspect. Mr. S. T. WRIGHT, Superintendent of the gardens at Chiswick, was absent through illness, and his duties were carried out by Mr. HUMPHREYS.

Floral Committee.

Present: W. Marshall, Esq., Chairman; and Messrs. P. de Villemorin, C. T. Drury, H. B. May, R. Dean, G. Reuther, J. H. Pitt, W. Howe, Jas. Hudson, J. Jennings, J. F. McLeod, Robt. Fife, C. J. Salter, W. H. Lees, J. Fraser, George Gordon, Chas. Jeffries, Jas. Walker, W. Bain, J. D. Pawle, E. H. Jenkins, H. S. Leonard, C. E. Shea, W. J. James, Herbert J. Culbush, H. J. Jones, C. Blick, Geo. Paul, J. W. Barr, T. W. Sanders, and Ed. Mawley.

Cyclamens were splendidly shown by the CHURCH ROAD NURSERY COMPANY, Hanwell, who had a group of plants in pots that more than furnished one half side of one of the long tables. The strain shown was excellent in respect to the habit of the plants and brilliancy and substance of the flowers (Silver Flora Medal).

The Chinese *Primula* was shown on this occasion by Messrs. JAR. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea. These included several varieties with white flowers, as *Gigantic White*, *Queen Empress*, *Fringed White*, *Mrs. Makins*, &c.; also *Gigantic Rose*, *Gigantic Blue*, and *Fringed Red*. The star *Primula*, *P. stellata*, was shown in several colours, including rose and white. A variety, *Mrs. Harry Veitch*, appeared to be a variety combining the characteristics of the "star" strain with those of the florists type; it is a very pretty, free-flowering plant, with larger flowers than the Star *Primula*, of pure white, but possessing in some degree the tier-above tier habit of that type. Of semi-doubles there were mauve, crimson, and salmon tinted varieties, the colour in each case being beautifully clear and bright.

Cinerarias from Messrs. J. JAMES & SON, Woodside, Farnham Royal, were admirable, whether from the point of view of cultivation or merit of strain. The plants bore many unopened buds, and would become even more showy, but those already open were of huge size, and of exceeding brilliancy. A Silver-gilt Banksian Medal was deservedly awarded this exhibit.

Messrs. BUTTON & SON, Reading, exhibited a group of *Cinerarias* in two varieties, remarkable for new shades of colour. New Pink is a very dwarf-habited plant (as shown), with fairly large flesh pink flowers, rather more "starry" in form than some of the florist's type. The contrast of the pink petals with the blue disc has a singular effect. Light Blue has much the same habit, is very free-flowering, and compared with the deep blue of some *Cinerarias*, the flowers are light in shade.

Roses were again very beautiful from Mr. GEO. MOUNT, Canterbury, who had excellent specimen cut flowers, with stout stems and vigorous foliage of the varieties *Catherine Mermet*, *Captain Hayward*, and *Mrs. John Laing* (Silver Banksian Medal).

Messrs. R. & G. CUTHBERT, Southgate Nurseries, Middlesex, showed a group of hardy *Azaleas* in pots. So densely bloomed were these that they produced a most showy effect, and a considerable number of choice varieties were represented. One of the more richly-coloured varieties was named "Brilliant." The so-called *A. mollis* x *sinensis* hybrids were very pretty (Silver Banksian Medal).

Messrs. CUTHBERT also showed plants in flower of a new white-flowered *Azalea*, which is believed to be quite hardy. The flowers are semi-double, and remind one of those of *Deutsche Perle*. The leaves are rather large, and are thickly covered with soft hairs. A large number of plants have been out-of-doors at Southgate during the whole winter and are uninjured, but the plants shown were lifted six weeks ago, and have flowered in pots. It will be a valuable variety if it can be grown permanently out-of-doors.

Mr. JOHN RUSSELL, Richmond Nurseries Surrey, also made an exhibit of hardy *Azaleas* in flower, the plants presenting almost an unbroken mass of bloom in many varied shades of colour (Silver Banksian Medal).

Messrs. JOHN LAING & SONS, Forest Hill Nurseries, London, staged a group of miscellaneous plants, including *Odium*, *Cordylines*, and many ornamental species.

Messrs. PAUL & SON, Chessant, Herts, showed a few species of hardy plants in flower, including *Saxifraga lutea purpurea*, *S. oppositifolia*, *S. o. alba*, *S. Boydii*, *S. Sancta*, &c., *Hepaticas*, *Helleborus*, *Primula verticillata*, &c.; *Lachenalia luteola* and *Nelsoni* were also shown, but in pots, and a plant in bloom of *Prunus triloba* (Bronze Banksian Medal).

Mr. H. J. JONES, Ryecroft Nursery, Hither Green, Lewisham, had a considerable group of *Hyacinths* and *Narcissus* in pots, staging a much better exhibit than on the last occasion. A new variety of *Hyacinth* with single flowers of pale blue colour known as *Mrs. H. J. Jones* was included (Silver Banksian Medal).

V. B. THURMAN, Esq., Norfolk Lodge, Barnet (gr., Mr. Thos. Walcroft), showed a group of blue *Primroses* in flower.

Messrs. J. PRED & SONS, Rousell Park Nurseries, Norwood

Road, London, S.E., exhibited a quantity of market plants in baskets. The plants were such as *Hyacinths*, *Ericas*, *Cytisus racemosus*, *Begonias*, &c.

Messrs. F. SANDER & CO., St. Albans, again showed some new varieties of *Camellias*, with such topical appellations as *Lady Smith*, *Kimberley*, &c., but they failed to win an award.

Messrs. WALLACE & CO., Kilnfield Nurseries, Colchester, exhibited *Anemone blanda*, and the new *Eranthis cilicica*.

Mr. H. J. ELWELL, Colesbourne, Andoversford, showed a pot-plant of *Kaiphosia primulina*, which has been in flower for a considerable period indoors. Mr. Elwell thinks that this very pretty yellow flame flower will prove hardy in warm localities.

Messrs. W. PAUL & SON, Nurseries, Waltham Cross, Herts, showed an interesting and extensive group of hardy deciduous flowering shrubs, especially rich in varieties of *Persica* (Peaches). There were remarked the *Carnation-flowered* variety, with a brilliant rosy-red, semi-double flower; the *Camellia-flowered*, not quite justifying its name, being scarcely more than single-flowered; the double white-flowered, with blooms 2 inches in diameter, and very freely produced; and *sanguinea flore-pleno*, a small-flowered variety. A double-flowered form of the Almond, and several of *Prunus*, viz., *P. triloba*, *P. Myrobolana rosea plena*, and *P. virgata rosea flore-pleno*. Of *Pyrus* we remarked *P. Malus floribunda Scheideckeri*, in white, and also in pink forms. Well-flowered plants of *Staphylea colchica*, of *Forsythia suspensa*, *Clematis indivisa lobata*, *Magnolia Soulangiana*, *Azalea indica Deutsche Perle*, *Rosa semperflorens* (China Rose), *Field Marshal*, a fairly full blossom of a deep crimson tint. The group was set off by some big plants of *Dracena indivisa* (Silver-gilt Banksian Medal).

Messrs. J. HILL & SON, Barrowfield Nursery, Lower Edmonton, exhibited an extensive collection of *Ferns*, such as they are accustomed to send to these meetings. In characteristic condition we may specify *Blechnum latifolium*, furnished with its red-brown-tinted young fronds. *Adiantum scutum*, showing fronds of a lighter tint; *A. Faulkneri*, a species whose fronds possess very minute pinnae; *Actinopteris australis*, with slit, fan-shaped fronds, which lay almost on the soil. A pretty form of *Adiantum capillus-veneris*, well-named *imbricatum*, with large overlapping pinnae giving the fronds a massive appearance. *Pteris tremula* var. *Smithiana*, and other fine *Ferns* (A Silver Banksian Medal).

Messrs. VEITCH & SONS, Chelsea, showed a group of *Prunus Cerasus* *Watereri*, as tall standard and dwarf bushes. The plants exhibited thoroughly the free flowering property of the variety.

Messrs. BARR & SON, 12 and 13, King Street, Covent Garden, London, W.C., had a rather extensive collection of species and varieties of *Narcissus* as cut flowers. The group was showy and pleasing, and well exhibited the usefulness of the *Narcissus* for early spring decoration when forwarded by cold frame cultivation, and in some cases by actual forcing in heat. The exhibit contained besides those flowers, various species of *Cyclamens*, *Fritillarias*, *Scilla*, *Crocus*, *Chionodoxa*, and *Helleborus* (A Silver Banksian Medal).

Mr. H. B. MAY, Dyson's Lane Nurseries, Edmonton, showed a group of plants of *Clematis*, including the varieties *Miss Bateman*, *Lady Lonsborough*, *Lord Wolsley*, *Fair Rosamond*, *Albert Victor*, and *Mrs. Quilter*. The plants had evidently been brought into bloom in warmth, and all of them were young, flowering for the first time. The flowers were well brought out by an undergrowth of small *Ferns*. He likewise showed a number of small plants of *Gloire de Lorraine Begonia* in bloom, an unusual event at this season.

Messrs. W. CUTRUSH & SON, Highgate Nurseries, London, furnished a table, running cross-ways of the hall, with a fine collection of plants of miscellaneous species.

Awards.

Pentapterygium serpens.—A small *Vacciniaceous* shrub, introduced from the Himalayas sixteen years ago. Rarely more than 3 feet in height, the stems have a tendency to droop, and the leaves are small. The flowers have tubular corollas, and are very conspicuous, being rather less than an inch long; colour of corolla bright red, calyx green. From Mr. J. T. BERNETT-POE, Holmewood, Chessant (Award of Merit).

Orchid Committee.

Present: J. Fowler Gurney, Esq., in the chair; and Messrs. Jas. O'Brien (Hon. Sec.), De B. Crawshaw, H. Ballantine, Norman C. Cookson, H. Little, J. Gabriel, H. J. Chapman, W. Potter, F. Sander, W. H. White, E. Hill, H. T. Pitt, H. A. Tracy, W. H. Young, and J. Douglas.

Dendrobiums were again a great feature in the show, a group of very finely-grown hybrids of the *D. splendissimum* grandiflorum class being exhibited by T. B. HAYWOOD, Esq., Woodhatch, Reigate (gr., Mr. C. J. Salter). All the plants were finely flowered, and showing a great variety. A grandly-flowered x *Schneiderianum* and other hybrids were also included, and a Silver Flora Medal was awarded (see p. 162).

J. BRADSHAW, Esq., The Grange, Southgate (gr., Mr. Whiffen), was adjudged a Silver Banksian Medal for a nice group in which were several remarkably fine forms of *Cattleya Trianaei*, the best of which were C. T. *Amesiana*, a pure white flower with yellow centre to the lip, which had a pure pink front lobe; and C. T. *regalis*, a very large and finely-formed dark-coloured flower. There were noted in the group, plants of *Odontoglossum Halli*, *O. crispum*, *O. x Adriane*, *Laelia harpophylla*, and of *Coleogyne cristata alba*.

NORMAN C. COOKSON, Esq., Oakwood, Wylam (gr., Mr. Wm. Murray), showed three remarkably distinct and fine varieties

of his beautiful *Phaius* x *Normani* (*Sanderianum* x *tuberculatus*), viz., P. x N. *pulcherrimus*, a very light-coloured flower with sepals and petals cream-white, with a very faint rose-tint, and lip of a light rosy-lilac tint; P. x N. *grandis*, a large flower having the sepals and petals tinged with rose, lip of rose, freckled with claret colour, and bearing an orange-coloured keel, and some yellow lines; and P. x N. *atro-rubens*, of a rich purplish-rose, with purple lip of a dark tint.

Sir TREVOR LAWRENCE, Bart., Burford Lodge (gr., Mr. W. H. White), showed white *Dendrobium nobile* var. *virginale*, and *D. nobile* var. *Cooksoni*, Burford variety, showing an improvement on the older form shown last year.

Messrs. JAR. VEITCH & SONS, Ltd., Royal Exotic Nursery, King's Road, Chelsea, again showed their fine *Laelio-Cattleya* x *Antimachus* var. *Caenea* (L.-C. *Dominiana* roses x C. *Warszewiczii*), a dark, richly-coloured flower, still having the fine perfume of C. *Dowiana* inherited from one of the parents of L.-C. x *Dominiana*; L.-C. x *Pisandra* (C. *Eldorado* x L. *crispus*), with flower resembling a small L. C. x *exoniensis*; and *Dendrobium* x *Imogen* (signatum x *suosum* leucotermum), with pretty pale yellow flowers.

Messrs. HUGH LOW & CO., Bush Hill Park, staged a group in which was noted a fine specimen of *Dendrobium Brymerianum*, furnished with numerous flowers; good plants of *D. barbatulum*, *D. x Dominiana*, *D. Madonna*, *D. Wardianum* Lowi, *D. nobile murrinianum*, *D. rubens grandiflorum*, *Cymbidium eburneum*, *Cypripedium*, and others.

His Grace the Duke of RICHMOND AND GORDON, Goodwood gr., Mr. Parker, showed *Dendrobium nobile* var. *Lady Caroline* (Gordon-Lennox, having large flowers with white sepals and petals, with rose-purple tips, the centre of the lip of a dark maroon tint, and the rest of the lip white with a rose coloured apex. The plant was small, and when grown at its best it should prove one of the largest-flowered of the species).

Mr. J. CYPHER, Cheltenham, staged a good group, principally *Dendrobiums*, among which were *D. nobile nobiliss*, still the best in colour of any form of this species; *D. x Ainsworthi*, Cypher's variety, striking, on account of the bright rose tint; *D. x splendissimum* Thompsoni, *D. x Luna*, *D. nobile Cooksoni*, *D. x Wigane*, several forms of the little *D. x Ethel* (moniliforme x *Rolfes roseum*), varying from almost pure white to rose-pink, with dark centre; *Masdevallia Veitchiana grandiflora*, and a very pretty cross named *Cypripedium* x *Daviesianum magnificum* (Boxall x *Argus Moensii*).

R. G. THWAITES, Esq., Chessington, Christchurch Road, Streatham (gr., Mr. J. M. Black), staged a small group of *Dendrobium*, &c., in which one good plant of a bright yellow form of *Dendrobium aureum* was remarkable.

R. I. MEASURES, Esq., Cambridge Lodge, Camberwell (gr., Mr. H. J. Chapman), showed *Cypripedium* x *Boxall-Rothschildianum*, a remarkable cross raised originally by Mr. N. C. COOKSON. The quaint-looking flower had a dorsal sepal heavily lined with dark purple, the lower half showing green ground colour, the margin white, the deformed petals greenish with purple lines, the lip whitish with a pretty veining and a rose-flush. The staminode bore distinct evidence of the cross.

WALTER COBB, Esq., Dulcote, Tunbridge Wells (gr., Mr. J. Howes), showed a pretty form of *Odontoglossum elegantiss*, flowering for the first time from an imported plant.

R. G. FLETCHER, Esq., Mount Harry, Brighton (gr., Mr. Garnett), showed *Odontoglossum crispum* Fay Fletcher, a fine, rose-tinted flower, with white lip; the petals and lip having some red-brown blotches.

A. H. WINGFIELD, Esq., Amphill House, Amphill (gr., Mr. W. J. Empson), sent seedling *Cypripediums*.

Mr. H. A. TRACY, Twickenham, showed *Cattleya Trianaei* Furzeana, a pretty flower with rich ruby-crimson front to the lip.

Captain HOLFORD, Westonbirt (gr., Mr. A. Chapman), sent *Cypripedium* x *Thompsoni inversum*, a fine flower of the C. x *Calypso* section; and a good light-coloured variety of *Cattleya Trianaei*.

ARTHUR HAY, Esq., Oakley Park, Eye, Suffolk, sent fine cut spikes of *Dendrobium atro-vioaceum*, *D. Johannis*, and an imported natural hybrid resembling *Laelio-Cattleya* x *Albanensis*.

Awards.

FIRST-CLASS CERTIFICATE.

Odontoglossum x elegans, *Eastwood Park* var., from Baron Sir H. SCHRODER, The Dell, Staines (gr., Mr. H. Ballantine). A very much larger and finer form than the ordinary variety, which was also shown for comparison. The narrow segments extended over 5 inches, and were of a pale yellowish colour, heavily blotched with chocolate. The long apiculate segments bore evidence of *O. cirrosum*, which, with *O. Halli*, produced it.

AWARD OF MERIT.

Laelia Jongheana, from H. T. PITT, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood). A fine typical form was shown with bright rose flowers, having the paler lip finely decorated with raised orange-coloured ridges.

Laelia Jongheana Templei, from Mrs. TEMPLE, Leywood, Groombridge (gr., Mr. Bristow). The best form which has yet appeared. Sepals and petals bright light rose, lip wavy, cream-white in front with a slight rose tinge, the centre bearing the orange-coloured keels peculiar to the species.

Odontoglossum crispum, *Oakfield Sunrise*, from THOS. BAXTER, Esq., Oakfield, Morecambe (gr., Mr. R. Roberts). One of the most remarkable forms which has yet appeared, and totally distinct from all others. Flowers of medium size, the sepals white, slightly tinged with yellow, the narrower petals having

the greater part of the surface coloured (not blotched), with bright brownish-red, the bases showing a little white, the slightly constricted outer half white, with some small, reddish markings at the tip. Lip narrow, the middle half rolled back, front broader, white. The base of the lip bore narrow brown lines; crest yellow. A very remarkable form, the origin of which does not appear.

Dendrobium × *Barberryanum* (*Findlayanum* × *Dominianum*), from Sir Trevor Lawrence, Bart. A very bright hybrid raised some years ago by the Right Hon. JOSEPH CHAMBERLAIN. Sepals and petals purplish-rose, their bases white. Lip white with dark claret-coloured base, yellowish-white middle area, and bright rose tip.

CULTURAL COMMENDATION.

To Mr. F. J. Thorne, gr. to Major JOCEY, for a fine specimen of *Dendrobium* anti-violeaceum bearing about fifteen finespikes of flowers.

Narcissus Committee.

Present: J. T. Bennett-Pot, Esq. (Chairman); and Messrs. C. R. Scrase-Dickins, W. Goldring, R. Sydenham, P. R. Barr, J. Pope, J. de Graaff, Miss Willmott, and Rev. G. H. Engleheart.

The Narcissus season is opening with every appearance of lateness, owing no doubt to the severe drought of 1899, which retarded the starting of root-growth. The Committee, therefore, had light work, no individual varieties being submitted, and only one group staged; this, from Messrs. BARR, consisted of an extremely well-grown collection of pot plants, short in foliage, and with well-developed flowers of the leading trumpet varieties. A single bloom of the fine new bicolor Duke of Bedford was included (Silver Banksian Medal).

Fruit and Vegetable Committee.

Present: Philip Crowley, Esq., Chairman; and Messrs. W. Wilks, R. Parker, E. Beckett, E. Shaw Blaker, Jos. Cheal, M. Gleeson, Jas. H. Veitch, P. C. M. Veitch, A. H. Pearson, W. Pope, Alex. Dean, S. Mortimer, A. F. Barron, W. Bates, H. Markham, C. Herrin, Geo. Wythes, Geo. Kelf, F. Q. Lane, G. Reynolds, W. J. Empson, Jas. Smith, G. Norman, J. Willard, Geo. Bunyard, and W. Poupert.

From the gardens of the Duke of Richmond, Goodwood Park (gr., Mr. R. Parker), were shown fine samples of several varieties of Apples, and a Cultural Recommendation was awarded for extra good fruits of the old Wellington or Dunselow's Seedling. Other varieties shown were Goodwood Pippin, and two strangers in Kitchen Keeping and Marketing. Early Radishes came from Mr. J. Crook, gr., Forde Abbey, Chard.

There were several varieties of Apples staged for Certificates, including one known as King's Acre Pippin from the English Fruit and Rose Company, Hereford, but all of them failed to obtain awards.

Lecture.

EVOLUTION OF PLANTS.

In the afternoon a lecture was delivered by Mr. R. IAWIN LYNCH, the title of his subject being "The Evolution of Plants, illustrated by various garden-strains coming true from Seed." Mr. Lynch explained that in general he agreed with the theory of Darwin in respect to the evolution of plants, a theory that to-day was better attested by facts which are undisputed than Darwin could have ever hoped. Darwin's theory embraced (1) variation, (2) struggle for existence, (3) survival of the fittest. Mr. Lynch maintained that evolution in respect to garden plants was carried out by the same means as are adopted in Nature. The processes are the same. The bearing of the continuity of protoplasm upon the theory of heredity was explained, and it was shown that hybridisation has its place in the scheme of Nature, and that new species are evolved in Nature by the hybridisation of older species. Mr. Lynch showed by numerous attested illustrations that garden hybrids are often quite equivalent to new species, and behave altogether as the so-called pure species do. Two of the instances quoted were *Montbretia croceomiflora*, and *Urceochoris Clibrani*, both of which bi-generic hybrids it was declared are exceedingly fertile; and in the former case, Mr. de Vilmorin had written that he believed it would be possible to fix the colour.

An endeavour was made to answer the question, whether it is possible to determine the limits of genera and species by sexual affinity, and it was pointed out that, philosophically, we can hardly make any distinction between hybrid and cross. The experiment of isolating "rogues" was suggested, to see what might be the result of this form of selection; but as a better experiment, it was recommended that the "rogues" and the best of the crop be allowed to cross together, so that they might settle down to some natural level. It has not been proved that this would result in reversion to original parents. The observations of Darwin in his *Origin of Species* should be consulted.

Mr. O. E. Shea (Chairman) observed that he agreed with the main positions taken by Mr. Lynch. Evolution in the garden was effected by natural methods, plus man's intelligence. But it remains a mystery what is the first cause of original variation, by which one plant is rendered more fit to survive than another.

Dr. Masters gave some interesting particulars respecting Passion-flowers. Hybrids had arisen between *Passifloras* and *Tacsonias*, and the differentiating characteristics of these genera had thus disappeared. He considered it was perfectly a that hybridisation is one means of producing new species.

Rev. Geo. Henslow was also in accordance with the greater part of Mr. Lynch's argument. But he objected to the view taken by Darwin of the influence of natural selection in the production of species. Selection, said Mr. Henslow, is not the cause of variation in form, though it may be of colour. In the former case it is wholly a question of environment.

LINNEAN SOCIETY OF LONDON.

MARCH 1, 1900.—Dr. A. GUNTHER, F.R.S., President, in the Chair.

Mr. W. SAVILLE KENT, F.L.S., exhibited lantern-slides of several British flowering plants, to show the remarkable advances which have been recently made in colour photography.

Mr. C. B. CLARKE, F.R.S., F.L.S., read a paper on "Botanic Nomenclature." He showed that the new rule adopted at Berlin—not to disturb names that had fifty years' user on the ground of priority alone—resulted in a practical uniformity with the system of naming adopted by Mr. Bentham and Sir J. D. Hooker. The Old World, he said, had thus reached a fair general agreement in nomenclature. The American botanists follow a new system which aims at finality on a so-called "non-shifting basis," in which the genus or species, as the case may be, is established on a type-specimen. Mr. Clarke's paper was devoted mainly to showing by selected instances that this system did not ensure finality; that the errors in determining what should be ranked as the type are enough to discredit the system; and the author commented on the disputed question whether a plant should be given the oldest specific name bestowed upon it, or the oldest specific name it bears in the genus in which it is now placed.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

MARCH 5.—On the occasion of the meeting on the above date, W. THOMPSON, Esq. (gr., Mr. Stevens), exhibited a small collection of plants, amongst which was a peculiar form of *Odontoglossum* excellens, called nobilior. The flower was of good shape, and richly coloured, but the "squareness" noticeable in the lip of this cross was absent, and possessed more of the character of *O. crispum* than of *O. Pescatorei* in this respect. Another good thing was *O. King Alfred*, which received along with the preceding plant a First-class Certificate. A Silver Medal was awarded to the group. *O. pulchellum* Stevens, possessing fine large flowers of extraordinary substance was shown, and received an Award of Merit.

J. LEEMANN, Esq., Heaton Mersey (gr., W. Edgo), staged a very fine group of Orchids, amongst which were several plants of the pure white *Dendrobium nobile* var. *virginale*. The most striking and beautiful plant in the group was, perhaps, *Laelio-Cattleya* × *Empress* of Russia (C. Mendel × L. Digbyana). The plant is apparently not more than six years old, and the pseudo-bulbs, although sound and healthy, were of small size; the flower, nevertheless, was large, well formed, and very pretty, showing the charming characters of both parents (First-class Certificate). L.-C. Ernest var. *Prince of Orange*, a hybrid between *Laelia flava* × *Cattleya Percivaliana*, an attractive flower, with segments of a brilliant orange tint, glistered when bright light shone upon them; this flower received a First-class Certificate. *O. Adriane* var. *Meteor* received an Award of Merit, as also *Dendrobium nobile* Sanders, a well-formed flower of pale rose colour. An Award of a Silver-gilt Medal was made for this group.

T. STATTEN, Esq., Stand Hill, Manchester (gr., Mr. Johnson), exhibited four *Dendrobiums*, viz., *D. splendidissimum* giganteum, a well-formed flower, of a rich colour, which received an Award of Merit; *D. Ainsworthi*, Statten's variety; and *D. splendidissimum*, Stand Hill variety.

S. GRATRICK, Esq., Whalley Range (gr., Mr. M. Lead), exhibited two hybrids—L.-C. × *Warnhamensis*, West Point variety; and L.-C. *Warnhamensis* Charlesworthi variety receiving a First-class Certificate and an Award of Merit respectively. This hybrid is between *L. cinnabarina* and *C. Trianae* Norman; and the distinction between the two exhibited consisted in the superior form and colouring of the West Point variety.

Mrs. BRIGGS-BURY, Accrington (gr., Mr. Wilkinson), showed a good plant of *Dendrobium* × "Rainbow," which has been previously dealt with by the Committee. Mrs. STANLEY CLARK, Wrexham (gr., Mr. Edwards), exhibited *Dendrobium* × *Cecilia*, and D. Waltoni. HOLBROOK GASKELL, Esq., Woolton Wood, Liverpool (gr., Mr. Todd), exhibited a very fine form of *Dendrobium* *Wardianum* giganteum, and was voted a First-class Certificate. HERBERT PATTINGTON, Esq., Glossop (gr., Mr. Campbell), showed a small group of *Cattleya Trianae*, one of which received an Award of Merit; the plants were well cultivated (Vote of Thanks). E. H. SEDDON, Esq., Brooklands (gr., Mr. Milne), showed a plant of *Cattleya* × *callistoglossa*.

Mr. J. CYPRICK, Cheltenham, exhibited *Dendrobium rubens* var. *grandiflora*, and *D. × Rainbow*, both of which have previously been certificated by the Society; and a very good hybrid *Cypripedium Boxallii* × *Argus* Moensii, received an Award of Merit.

L'HORTICOLE COLONIALE (Linden), Brussels, exhibited a set of *Odontoglossum* × *Adriane*, of which all were beautiful and interesting; the Committee chose *O. × A. var. tigrina* for an award of a First-class Certificate. Awards of Merit were made to *O. × A. var. majestica*, and *O. × A. var. castanea*. *O. × A. var. delicata*, *O. × A. var. citrina*, and *O. × A.*

var. *pallens*, were also very choice and distinct, but were borne down by the superiority of the former varieties (Vote of Thanks).

Mr. A. J. KEELING sent a few nice plants, including *Cypripedium* × *M. de Curie*, C. × *Balloa*, *Laelia Jongheana*, *Dendrobium* × *Dulce* (Vote of Thanks).

Messrs. BACKHOUSE & SON, LTD., York, showed a good form of *Cattleya Trianae*, which was given an Award of Merit; it had a lip of very great brilliancy.

G. W. LAW-SCHOFIELD, Esq., Rawtenstall (gr., Mr. Shill), sent the pretty cross *Cypripedium* × *Shillanum* (C. Gower × *Rothschildianum*), a flower of fine proportions and dark colouring. The Committee confirmed their previous vote on this variety of an Award of Merit.

Dr. E. J. SIDEBOTHAM, Bowdon (gr., Mr. Shiner), exhibited a superior form of *Cattleya Trianae*, which received an Award of Merit. T. BAXTER, Esq., Morecambe (gr., Mr. Roberts), showed some good *Odontoglossums*, of which *O. crispum* var. *Hecla* was the best, a fine, bold, round flower of a rosy tinged throughout, the plant was a specimen, and bore two magnificent flower-spikes; it received an Award of Merit and Cultural Certificate. *O. × Andersonianum* Baden Powell, a good variety, received an Award of Merit; *O. crispum* Rosy Gem, *O. c. Gertie Baxter*, *O. Ruckerianum* Oakfield var., were also shown.

A very distinct variety of *O. crispum* was shown by a firm on behalf of Mr. Baxter, which was provisionally named *O. a. Surprise*, mentioned in the report of the Royal Horticultural Society meeting.

O. O. WHITLEY, Esq., Bridge Hall, Bury (gr., Mr. Rogers), showed *Laelia Jongheana* var. *gigantea*.

J. RICHARDSON, Esq., Altrincham, sent a good plant of *Laelia superbiens*, P. W.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

MARCH 12.—The annual general meeting of this excellent Benefit Society was held on Monday last in the Caledonian Hotel, Adelphi, Strand. In the absence of Mr. S. T. Wright, through illness, the Chair was taken by Mr. Richard Deam, and there was an attendance of about thirty-five members.

The following is an extract from the—

COMMITTEE'S REPORT FOR 1899.

"Eighty-three members joined during the year, twenty-nine lapsed from various causes, two died, and two ceased to pay, being over seventy years of age; this leaves a net increase of fifty, the membership for the year being 791. The amount of subscriptions paid by members to the Benefit Fund, including arrears for 1898, was £1236 5s. 8d. The sick pay account was £206 2s., being £52 15s. less than last year. This is covered by deductions from members' deposit accounts of 6s. 5d. and 4s. 4d. respectively. There is a balance now in this fund (including £1201 15s. 11d. standing to the credit of lapsed members) of £12,190 9s. 2d.

"The Benevolent Fund is now doing useful work. Subscriptions amounting to £158 16s. 1d. have been received from honorary and benefit members, including £10 10s. generously given by W. Y. Baker, Esq., at the annual dinner. Various grants have been made from this fund, amounting to £60 5s. 6d.

"The Convalescent Fund continues to increase. Mr. Baker and Mr. Sherwood each gave a donation of £5 5s. at the annual dinner. Three members only applied for assistance during the year, the amount paid out being £4 only.

"The Management Fund shows a balance of £129 8s. 10d. The amount invested in corporation stock by the Treasurer during the past year was £1,500, the total invested funds being £15,850, and the Treasurer has £153 14s. 11d. in hand."

The Chairman in proposing the adoption of the report, described the condition of the Society's affairs as satisfactory in every detail. He could wish that there were more than 791 members, and suggested to the committee that perhaps further means could possibly be adopted of advertising the Society at flower-shows, and in other ways. Mr. W. Marshall having seconded the report, it was adopted unanimously.

Retiring members of the committee were re-elected with the exception of Messrs. E. T. Cook and — Forman, whose places were filled by the election of Messrs. C. H. Curtis and — Standridge.

Any of our readers who may wish to see the details of the balance-sheet may obtain a copy from the Secretary, as it was decided upon the motion of Mr. Marshall to print 5,000 copies for distribution.

A resolution of sympathy was passed, upon the proposition of Mr. Marshall, with the family of the late John Fraser, first Treasurer to the Fund.

On the proposition of Mr. Hudson, the meeting resolved to present the Secretary with a bonus of £10, which will make his salary for the year £52. The Committee was instructed to take into consideration the question of permanently increasing the Secretary's salary. Officers were re-elected, and votes of thanks passed. The Secretary is Mr. W. Collins, Martindale Road, Balham.

BOSTON AND DISTRICT DAHLIA SOCIETY.

THIS Society held a very successful Dahlia exhibition last year, and came out with a small balance in hand. It is proposed to continue the Dahlia Show in the present year, and Mr. Richard Flint, the treasurer, is making an appeal to lovers of the Dahlia for support. It is intended to have a larger show than last year if adequate support is forthcoming.

and also to hold it earlier in the season; but it will be necessary to take care the fixture does not clash with the National Dahlia Society's Show at the Crystal Palace, or the Seedling exhibition at the Drill Hall, while the Royal Aquarium and Wellingborough fixtures will have to be avoided. There appears to be evidence that a much greater interest is being taken in the Dahlia as an exhibition flower than prevailed a few years ago.

THE ROYAL DUBLIN.

Professor J. Johnson, F.L.S., delivered a lecture on the 9th inst., entitled "some aspects of Modern Botany." He pointed out that scientific botany was from several stand-points, its least scientific aspect, and the classification of the British school of botanists was less scientific than their co-workers the Germans. From the point of view of the field, botanist it was also dissimilar in which they found themselves. There is some hope that order may finally be expected owing to the labours of the editors of the *Index Kewensis*, &c. The subject of vegetable physiology was spoken to at length, and the early labours of R. Brown enumerated. Brown was one of those who helped to lay in Great Britain the foundation of modern vegetable physiology, and his labours in systematic botany were by no means meagre. In speaking of Tobacco culture, the Professor said that heavy nitrogenous manuring injured the flavour of Tobacco.

Reference was made to the Flax industry, and the advance that has been made in regard to it. The value of economic botany and museums was insisted upon, and various other interesting matters were discussed. A. O'N.

MISCELLANEOUS SOCIETIES.

Wargrave and District Gardeners'.—At a meeting held on Wednesday, Feb. 21, Mr. W. H. Scott presiding, the hon. sec., Mr. H. Coleby, read a paper on "Soil Formation," illustrated by diagrams and experiments. The position of the soil and subsoil as compared with older underlying rocks was first explained by reference to specially prepared diagrams, and the geologists' method of classifying rock by periods, according to their formation, was also shown. The natural causes of the crumbling of rocks, as heat, cold, frost, water, and air were next touched upon, and the manner of forming a soil from hard rock was described. Local and alluvial soils, peat bogs and their formation were in turn noticed, and the uses of the soil to the plant were pointed out. By means of simple experiments it was shown that the soil consists of a mechanical mixture of sand, clay, carbonate of lime, which were known as mineral or inorganic matter, and of humus or organic matter. The origin of each of these was explained, and their distinguishing features and use in the soil described. The chemical changes in what is generally known as "decay," were next explained, and the reasons why "heat" appeared in a hotbed. In conclusion, the characteristics of sandy, clayey, calcareous, peaty, and loamy soils were described.

— At a meeting held on March 7, Mr. H. Hill, gr. to N. Rattray, Esq., read a paper on the "Cultivation of the Cineraria," which gave rise to an interesting discussion. The exhibits included Hyacinths from Mr. GREENAWAY; an *Azalea* from Mr. FULLBOOK; *Cinerarias* from Mr. HASKETT; and a group of Orchids from Mr. Pope.

Isle of Wight.—The monthly meeting of the Isle of Wight Horticultural Improvement Association was held at Newport on Saturday. In the absence of the Chairman of the Association (Dr. J. Groves), Mr. J. L. Mitchell was unanimously elected Chairman for the evening. Mr. S. Heaton gave a practical demonstration in "Fruit-tree Pruning," which evoked an interesting and profitable discussion.

Bristol and District Gardeners' Mutual Improvement Association.—The usual fortnightly meeting of the Society was held at St. John's Parish Room, Redland, on Thursday, 8th inst. A large attendance was presided over by Mr. Chas. Lock. Mr. R. Stewart, gr., Sneyd Park, provided the paper, which was on the subject of "Peaches and Nectarines." He disclaimed at the outset any intention of dealing with the culture of the fruits in the open air, and confined his remarks to Orchard-house culture. Mr. Stewart concluded an able paper by enumerating the varieties he thought most useful, and the many pests to which the Peach was liable. A good discussion followed, and Mr. Stewart was accorded a hearty vote of thanks on the motion of the Chairman.

Reading and District Gardeners'.—The large attendance of members present at the fortnightly meeting held on March 12, testified to the increased interest now taken in hardy flowers. The subject for the evening was "The formation and arrangement of a hardy Border with a list of Plants suitable for same," by Mr. D. Harris, Gardener to Col. Jekyll, Munstead House, Godalming. Mr. Harris said that the field open to the outdoor-flower gardener was a wide one, as the positions of gardens varied so much in character that gardeners had each to work entirely according to circumstances. The lecturer described the best sites and how to prepare them, spoke of soil, suitable plants and their arrangement, time of planting, &c. An interesting discussion followed, in which Messrs. Stanton, Neve, Townsend, Lever, Burditt, Hinton, E. J. Dore, Fry, Exter, and Chamberlain, took part. There were two floral exhibits by Mr. F. LEVER, The Gardens, Hillside, Reading; and Mr. W. TOWNSEND, The Gardens, Sandhurst Lodge.

FOREIGN CORRESPONDENCE.

DAHLIA NOVELTIES.

WHEN looking through No. 685 (dated Feb. 10) of your esteemed weekly, I found on page 85, under the title "The beginning of a new race of Dahlias," a few remarks, saying that the correspondent, Mr. E., in Canton, Mass., U.S.A., "had found in 1898, among his Dahlia-seedlings, a plant, some of whose flowers (single) had a long narrow floret lying on each of the usual broad ones, and that he never had observed anything of the kind before." With regard to which I beg to state some facts, which I hope you will not omit to publish in your columns at the earliest convenience. As early as 1894-95, a Dahlia similar to the one represented by the figure of Dahlia excelsa in *Gardeners' Chronicle*, p. 85, was introduced to the trade by the firm F. C. Heinemann, at Erfurt. This novelty, named Dahlia hybr. "Aegir," is a hybrid variety that originated in Heinemann's Nursery from a set of single Dahlias, and was described in his catalogue for 1895 as follows:—

"Aegir" is a completely new, peculiarly-formed flower, which reminds one of a double-flowered Pyrethrum. The tubes enclosing the anthers are so perfectly developed, that the latter are totally hidden; the outer petals of a lilac-rose tint, and partly slashed at their points. The plants are of faultless growth. The flowers stand well above the foliage, and from some distance the whole does not look at all like a Dahlia. "Aegir," as shown by an illustration in that catalogue, has nearly the same appearance as the *D. excelsa* represented on p. 85 of the *Gardeners' Chronicle*, and I will not omit to add, that plants of this variety, which I have seen myself with Mr. Heinemann, show already such a considerable difference in outward appearance, in the very stout and strong growth, that they may well be considered as the offspring of a new race. Therefore with regard to the statement of Mr. E. Canton, that he had found his plant among seedlings, the origin of these seedlings may probably be sought for in Heinemann's novelty "Aegir." As the horticultural trade of Erfurt conducts a very large trade with the United States of America, it is quite possible that some seeds or some tubers of the Dahlia hybr. "Aegir" may have reached that country. *Matthias Gebhard, Erfurt.*

ANSWERS TO CORRESPONDENTS.

AN OVER-DOSE OF MURIATE OF POTASH TO A VINE BORDER: T. A. As you have dressed the border at the rate of 2 lb. per lineal yard, and thus applied probably 8 oz. to the square yard, or four times as much as is safe, the substance is very likely to do harm to the Vines, unless you can wash much of it out of reach of the roots by a heavy application of water. Sulphate of potash, which you desired to use in place of the muriate, is very good when mixed with earth, &c., some kinds of plants as for example leguminous plants and root crops, but its use is barred by its price.

APPLE SHOOTS: *Manager.* Canker from a fungus (*Nectria*). Cut it out and burn at once. The red insects are Acari, feeding on the old wood, and on the new bark that is covering the old dead wood.

A PREVENTATIVE OF LOSS OF YOUNG TOMATO PLANTS: F. N. We would advise dressing the plants with sulphide of potassium at the rate of 2 oz. per gallon of water when established in the pots in which you are now placing them. The land they are going to occupy may be dressed with unslaked lime, just turning it in with the plough or spade. The Bordeaux or the potassium mixture might be applied twice or thrice during the summer as a preventative. For a safe dilute formula of the Bordeaux Mixture, see our issue for March 3, p. 144, under heading "Spot on Grapes, &c."

CARNATION DISEASED: *Enquirer.* The plant is affected by the Carnation Rust, and we doubt if any application of fungicide will be of much service when the fungus has overrun the leaves

so much as in the case of the piece sent. We are not acquainted with the virtues of the emulsion named in your note.

CHRYSANTHEMUM NIVEUM: S. G. R. & Son. Each year there are sent us a few blooms of some varieties of Chrysanthemums that by special treatment in the matters of stopping, &c., have been delayed from flowering until, and in some cases April. Niveum is admitted to be a valuable variety to produce white bloom after the New Year.

ENTRANCE TO KEW: W. M. You must communicate with the Director, furnishing him with testimonials and sketch of gardening career.

NAMES OF FRUITS: T. H., Haslemere. Apple Sturmer Pippin, remarkable for its late keeping qualities and excellent flavour.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—A. Hills. *Leucodendron argenteum* (Silver-leaf Tree).—H. B. F. *Cattleya amethystoglossa*, often called *C. guttata* Prinzii.—R. B. L. 1, *Mitrostigma axillare*; 2, *Dieffenbachia Shuttleworthii*.—T. H. O. P. *Begonia fuchsoides*, *Pinus exoclea*.—T. W. *Leucocium aestivum*, Snow Flake, a rare British plant.—*Hortus*. *Cypripedium callosum*, *Miltonia Clowesii*, the blotched flower; the yellowish flower *Ceoloyne fuscocens*. Why not put numbers to the specimens?—R. T. D. *Laelia Jongheana*. The photograph of *Odontoglossum crispum* represents a very good variety.—*Edina*. *Lycaste costata*.—J. A. 1 and 2, varieties of *Dendrobium fimbriatum oculatum*, 1, specially fine; 3, *Dendrobium nobile*, good; 4, *Dendrobium Pierardi*.

NITRATE OF SODA FOR LAND UNDER FRUIT-TREES: A. M. On ordinary soils the application of nitrogenous or ammoniacal manures is best for cereals, and phosphatic ones for roots and green crops is the rule, but it can only be broadly applied; and we think that you would be wiser if you employed more phosphates than nitrates, say, superphosphate of lime, dissolved bones, and nitrate of soda, at the rate of 3 cwt. per acre, if the land be retentive. Nitrate of soda is a wasteful manure to use on porous land, being carried away to the drains or the subsoil by the rains; and especially wasteful when used in late autumn and winter, for such soils cannot fix the nitrogen.

PALM WITH FUNGUS: T. M. The fungus is that known as *Graphiola phenicis*. Sponge them occasionally with an effective fungicide, and at other times syringe them with a similar liquid.

SPENT HOPS AND SPENT MALT AND ORCHIDS: *Constant Reader.* We would advise you to have nothing to do with these evil-smelling substances, but to stand the plants on wooden spar staging, placing a layer, several inches thick, of half-decayed tree-leaves under the staging, at 1 foot distant therefrom. This layer will diffuse mild fumes in the house, similar to the decaying vegetation of a tropical forest, and be beneficial to the plants.

COMMUNICATIONS RECEIVED.—A. O'N.—A. M.—J. Banderman—J. Carter & Co.—W. G. P.—H. G. C.—O. B.—Prof. Waugh, U.S.A.—F. C.—D. T. F.—A. C. B.—G. H.—A. S.—W. B.—J. B. S.—J. W.—A. E. B.—E. Bonavia.—G. J.—G. W.—H. H. D.—E. J.—W. H. S.—T. W.—B. H.—G. H.—A. H.—J. B.—J. W.—S. A.—W. Clifford.—B.—H. C., Geneva.

SPECIMENS, PHOTOGRAPHS, ETC., RECEIVED WITH THANKS.—G. B. M.

DIED.—ROSE NAPPER.—On March 9, at 28, Tet-cott Road, Chelsea, Rose, the dearly-loved wife of William Napper, formerly of the Exeter Nursery, aged 45.

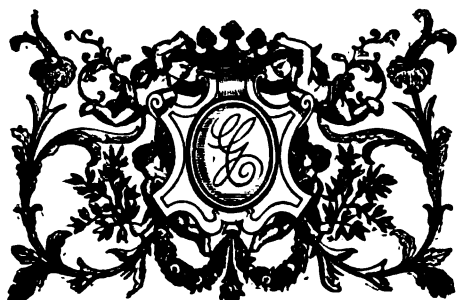
Continued Increase in the Circulation of the "GARDENERS' CHRONICLE."

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

TREBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS' AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is covered for reference in all the principal libraries.

(For Markets and Weather, see p. xiv.)



THE Gardeners' Chronicle

No. 691.—SATURDAY, MARCH 24, 1900.

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THE VEGETATION OF THE GALAPAGOS ISLANDS.

IN the *Gardeners' Chronicle*, October 8, 1898, pp. 265-6, fig. 75, I gave some particulars of the Cactaceæ which constitute such a striking feature in the vegetation of the Galapagos Islands, together with a brief sketch of the life and labours of the late Dr. G. Baur, who worked so enthusiastically in the elucidation of the natural history of those interesting islands. That article was illustrated by a view in Barrington Island, with a very fine specimen of *Opuntia galapageia* in the foreground, solitary, yet flourishing amid blocks of lava, where almost nothing else could grow. (See *Gardeners' Chronicle*, October 8, 1898, p. 266, fig. 75).

I need not apologise for explaining that the Galapagos (Turtles, in English) are a group of volcanic islands on the equator, in about 90° west longitude, and 500 miles from the coast of Ecuador in western South America. There are about twenty named islands, besides a number of islets and rocks. The largest, Albemarle, is

about 100 miles long, and its mountains rise to a height of 5,000 feet. All the other islands are very much smaller. According to Baur and others, no volcanic activity has been reported since 1835, but in 1825 there was a tremendous eruption on Narborough Island.

Apart from introduced plants, known or suspected, the vegetation consists largely of shrubs and dwarf trees, having small leaves and inconspicuous flowers. Upwards of 300 species of flowering plants and Ferns have been recognised as aboriginal. Lilies and their allies, Orchids and Marantas, Bamboos and Palms, and numerous other families are altogether absent or very sparsely represented; yet in the upper zone vegetation is relatively rich and varied, and evergreen, due to greater humidity. Altogether, about thirty species of Ferns, including one arboreal species, have been collected, and as many or more of grasses and sedges combined. *Epidendrum spicatum* is an inconspicuous, endemic species, apparently very rare, for it has not, I believe, been collected since Darwin's time. One imperfect specimen of a *Eulophia* is the only other Orchid known.

Dr. Wolf and subsequent writers, who have actually visited the islands, state that there are three distinct belts of vegetation in all the islands in which there is any considerable elevation. The lower, or coast-belt, is the poorest, consisting of salt-loving plants, and scattered, stunted bushes, belonging to various families; but there is one prominent feature—the Cactaceæ. Among the commonest plants is a species of *Lantana*, which seems capable of growing and flourishing where the conditions are most unfavourable. The intermediate belt is wooded, though the trees are small; whilst the upper region is treeless. But it is of the lowermost or lava-field vegetation that I would give some further particulars. In my former article, cited above, I mentioned that Darwin was the first (1835) to make known the presence of Cactaceæ in the islands, and to point out their great utility in the economy of both plant and animal life; and Andersson, a Swedish botanist, who visited the islands some years later, thought he recognised five or six species of this family, but was unable to bring away specimens for more exact study. In 1891, Dr. G. Baur visited all the islands previously more or less explored, and in addition, collected in no less than eight others; his collections being by far more copious than those made by his predecessors.

Owing to some published remarks of mine respecting the little that was known of the Cactaceæ, he sent me the photographs here reproduced, together with some details of the development of the family in the islands. *Opuntia galapageia*, originally discovered by Darwin and described from his specimen, is the most conspicuous, and grows in the most exposed stony situations, close down to the sea. From superficial observation, Dr. Baur was of opinion that this species occurred in all, or nearly all, of the islands, varying considerably in stature and other characters in different islands; but from facts that have come to light since, it is probable that some of these supposed varieties are distinct species. I will repeat here what he has published on this point: "On Barrington, Indefatigable, and South Albemarle, it develops a tall trunk; on Charles and Hood, a relatively short but thicker trunk; on Jervis, a very short trunk, branching from near the ground; and on Tower island it forms no trunk at all." Dr. Baur attributed these

modifications to the varying degrees of humidity, or, perhaps one should say, of dryness, the greatest development occurring in the driest climate. The largest specimens of *Opuntia galapageia* were about 20 feet high, with a trunk 6 feet in circumference. It is equally remarkable for its stature and the smallness of its flowers, which are barely three-quarters of an inch in diameter.

The second photograph presented to me by Dr. Baur, and reproduced on p. 185 (fig. 61) represents a large *Cereus* growing among bushes, which was noted by Darwin, Du Petit-Thouars, and other early travellers. It will be seen that this *Cereus* is a prominent feature in the bush vegetation.

Last year Dr. Alb. Weber, of Paris, published (*Bulletin du Museum d'Histoire Naturelle*, 1899, pp. 309-314), a paper on the Cactaceæ of the Galapagos, in which he describes, or names, from very imperfect material, it must be admitted, three proposed new species. These are the three mentioned by Du Petit-Thouars (*Voyage autour du Monde*, ii., p. 291), one of which Dr. Weber identifies with the *Cereus* alluded to by Darwin, Baur, and others, and supposed to be the same as that represented in fig. 61. This he calls *Cereus galapagensis*, observing that it is doubtless the same as our plant, though he had no more material than we have to assist him in identifying it. However, he is probably right, though the possibility of the existence of two or more closely allied species is not considered by him. It is certainly very similar to *C. peruvianus*, but neither flowers nor fruits are known.

Another of Thouars's species, also sent, Dr. Weber says, by Agassiz and Engelmann, and compared with *C. multangularis* by the latter, he names *C. Thouarsii*. It is described as having cylindrical, channelled stems between 2 and 3 feet long, superposed on one another. The fruit is violet-red, resembling a large Plum, filled with a soft white flesh, mixed with numerous small black seeds, and of an agreeable flavour.

Dr. Weber's third species, *Opuntia myriacantha* (fig. 56), is of more immediate interest, because it is in cultivation in the South of France, and we hope to see it in this country before long. This has a curious history. On returning from Mexico, in 1868, Dr. Weber began investigating the Cactaceæ in the Paris Museum of Natural History, and found, among other things, an untouched package containing the trunk and some detached branches of an *Opuntia*, collected in Charles Island (Galapagos) by a Dr. Néboix, who accompanied Du Petit-Thouars. The same species was found in Albemarle Island by Prof. Agassiz in 1872, and twenty-three years ago Dr. Weber received a living plant from the late Dr. Engelmann. Five years ago it was planted in the garden of Mr. Roland Gosselin, at Nice, and is now between 6 and 7 feet in height. Its peculiar habit will be understood from the figure, made from a reduced photograph given to me for the purpose by Dr. Weber. The following is a condensed translation of his description:—

Branches yellow-green, flattened, obovate, usually 8 to 10 inches long, by 6 to 7 inches broad (sometimes 12 to 14 inches by 8 inches), jointed to each other at right angles or in the same plane, pendulous as the plant increases in size. Reduced scale-like leaves, minute, thick-pointed, of a green-brown colour; areoles smaller and more numerous than in *O. galapageia*, but not woolly, bearing a cluster of yellow bristles about a quarter of an inch long

in their upper part, and in their lower part numerous long, very slender, sharp, deflexed spines of a bright golden-yellow, finally becoming indefinite in number and unequal in length, varying from 1 to 5 inches. Ovary obconical, 2 inches in length, bearing about fifty rhomboid tubercles, confluent in ten spiral series, destitute of wool, and furnished with scales bearing a cluster of stiff, sharp, yellow bristles, with one or two small spines. Sepals numerous, green, obtuse, about one-fifth of an inch broad. Petals pure yellow, clawed, one-third to half an inch broad at the rounded top. Stamens numerous, yellow. Style having nine pale yellow, elongated branches.

This plant of *Opuntia myriacantha* flowered for the first time in August, 1898. The brilliant yellow flowers, which are about 2 inches in diameter, last two days.

I will conclude with a few facts concerning the general composition of the flora. In most of the works treating of "insular floras," the generic endemic element of the flora of the Galapagos has been greatly over-estimated; partly in consequence* of errors in Darwin's statistics, which have been copied by many subsequent writers; partly because the flora of the opposite American coast was not so well known as it is now. When Sir Joseph Hooker worked out Mr. Darwin's botanical collection from the Galapagos, together with the plants collected by previous travellers, now upwards of fifty years ago, he had eight genera which he then regarded as distinct from any known from elsewhere, but subsequent investigations and discoveries have greatly altered the figures as to endemic genera. Indeed there is not one left that presents marked differences from its nearest allies on the American continent, and only two are retained. Five of the supposed peculiar genera belong to the Compositæ. They are *Desmocephalum* and *Microcæcia* = *Elvira*, *Macrea* = *Lipochaeta*, and *Scalesia* and *Lecocarpus* are so near *Mirasolia* and *Melampodium* that the late Mr. Bentham, in his revision of the Order, remarked that they might well be reduced. Of the others, *Galapagoa* (Boraginaceæ), is the same as *Coldenia*; *Dictyocalyx* (Solanaceæ) is *Cacabus*; and *Pleuropetalum* has since been found in several localities on the mainland of America. On the other hand, endemic species of American genera, and genera of wide distribution, are numerous. Prominent among them are bushy Compositæ, and species of such widely spread genera as *Euphorbia*, *Acalypha*, and *Borreria*. Excepting *Rhipsalis* in some of the islands of the Indian Ocean, the Galapagos are the only oceanic or remote islands inhabited by indigenous Cactaceæ. *W. Botting Hemsley.*

ORCHID NOTES AND GLEANINGS.

THE number of the *Lindena*, issued on Feb. 28, contains coloured illustrations and descriptions of the following species and varieties:—

CATTLEYA DOWIANA BATEMAN VAR. *MOORTEBEEKIENSIS*, L. Linden, tab. dclxxxviii.—Lip with a yellow ground thickly striped with deep red, the front part of the lip is rich crimson.

COROLODYNE DAYANA, Rehb. f., tab. dclxxxvii.—Like other Bornean Orchids, this requires the heat of the East Indian-house, with abundance of moisture in the growing season.

DENDROBIUM PRIMULINUM, Lindl., tab. dclxxxvi.—It requires a warm temperature, abundance of light, and plenty of moisture in the growing season. D. Mentor x and D.

* Through some misconception or mistake, he states that there are ten endemic genera out of twelve belonging to the Compositæ.

Rolfea x are named as hybrid derivatives from this species, the other parents being respectively *D. superbum* and *D. nobile*.

MILTONIA CANDIDA, Lindley, tab. dclxxxv.—An old favourite thriving in an intermediate-house with full ventilation. *M. Jolceana* x and *M. leucoglossa* x are considered by M. Linden to be hybrids of some species of this genus.

AMERICAN NOTES.

HYBRID PLUMS.

THE European gardener, I expect, can hardly appreciate how strong is the temptation for the American fruit amateur to try his hand at hybridising the Plums. In order to see more clearly what this temptation is, it is necessary to notice the multiplicity of Plum species cultivated in our gardens. Those which are extensively planted are the European Plum (*Prunus domestica*), in all its forms—Prunes, Gages, Perdrigons, Auberts, &c.; the Damsons (*Prunus domestica* *Damascena*), which also



FIG. 56.—*OPUNTIA MYRIACANTHA* (WEBER), NEARLY 7 FT. HIGH, GROWING IN THE GARDEN OF MR. ROLAND GOSSELIN, AT NICE. NATIVE OF THE GALAPAGOS. (SEE P. 177.)

includes the Bullace; the *Myrobalans* (*Prunus cerasifera*), the Japanese Plums (*P. triflora*), the American Plums (*P. americana* and *P. americana nigra*), the Chicasaw Plums (*P. angustifolia*), and all the so-called Hortulana series, once included under the name *Prunus hortulana*, of which I will speak further in a moment. Besides these, the following species are fairly common in gardens, and are to be found in every hybridiser's collection:—The Beach Plum (*Prunus maritima*), the Apricot Plum (*P. Simoni*), the Pacific Plum (*P. subcordata*), the Sand Plum (*P. angustifolia* Watsoni), and usually several other odds and ends of the genus *Prunus*.

It is necessary, in the second place, to notice the facility with which species of *Prunus* cross. It is now the general understanding that hybridisation in the native woods is common almost anywhere where two species grow and blossom together. This is especially true of *Prunus americana* and *P. angustifolia*. These two species overlap in their distribution through several States of the central Mississippi valley, and here their hybrid progeny

form a great and conglomerate series of the highest interest and importance. This is what may be called the Hortulana series. It was to the more striking members of this group that Professor Bailey first applied the name of *Prunus hortulana*, but further investigation has shown the series to be too much mixed to stand under one species name, even if such a group of hybrids were to be admitted to specific rank. The complications of this group are extremely interesting to the student of hybridity; but there will not be space to discuss them here. Hybrids occur with equal ease where several species are grown together in the orchard; and there is hardly a Plum-orchard to-day in the States which does not contain at least two or three different species. The Japanese Plums combine with others with especial ease, particularly with varieties of the Chicasaw species, and of the Hortulana series. The Japanese varieties also hybridise easily with the Apricot Plum.

In view of these facts, it is not surprising that a large number of Plums of hybrid origin have been introduced to planters through the American nursery trade in recent years. The number named and described is about seventy, of which about half have been privately or commercially distributed. About ten of these have been widely advertised and sold, and two or three have been planted on a commercial scale. As the very oldest of these trees have now hardly borne their virgin crops, it is too early to say what their value is.

Those varieties which, for one reason or another, seem to me to be the most promising or interesting are as follows:

America, <i>Prunus triflora</i> x <i>P. angustifolia</i> .	
Climax, " " x <i>P. Simoni</i> .	
Daisy, " " x <i>P. angustifolia</i> .	
Excelsior, " " x <i>P. angustifolia</i> .	
Golden, " " x <i>P. angustifolia</i> .	
Gonzales, " " x <i>P. hortulana</i> .	
Maynard, " " x <i>P. Simoni</i> .	
Occident, " " x unknown species.	
President, " " x <i>P. Simoni</i> .	
Wickson, " " x <i>P. Simoni</i> .	

The striking thing about this list, of course, is the ubiquity of *Prunus triflora*. It is a fact that every hybrid yet to gain any prominence has partaken of this strain. It is also interesting to note that, with one exception, all the above varieties are from *Prunus angustifolia*, or *P. Simoni*.

If we take those fifty-two varieties whose parentage is known, or may be safely guessed, we have the following showing:—

<i>Prunus domestica</i> , 1.	<i>Prunus americana</i> , 4.
<i>P. cerasifera</i> , 6.	<i>P. angustifolia</i> , 20.
<i>P. triflora</i> , 48.	<i>P. hortulana</i> , 14.
<i>P. Simoni</i> , 13.	<i>P. pumila</i> Besseyi, 1.

The figures given opposite each species' name indicate the number of times the species has participated in a hybridisation. In two of these cases three or four species are combined.

Some of these varieties are remarkable for size, beauty, quality, firmness in shipping, or for other good things; in fact, there is hardly a single good point, so far as can be told at first trial, in which previously known varieties have not been surpassed by some hybrid. No one can doubt but that the results finally must be wide-reaching, and of the greatest moment to pomology. *F. A. Waugh, January, 1900.*

[The illustration on p. 179 of the present issue will afford our readers an idea of the forms of some of these hybrid Plums. Ed.]

THE INTRODUCTION OF THE POTATO INTO ENGLAND.

(Concluded from p. 162.)

Drake — RALEGH. — The traditional belief is that Sir Francis Drake brought both the Potato and Tobacco with him in 1586, and that was the reason for the Tercentenary Exhibition being held in 1886. It was in 1584 that the first expedition was organised by Sir Walter Raleigh, and took possession of the island of Roanoke and part of the mainland adjoining, which in the same autumn was renamed Virginia, in compliment

to the queen, Elizabeth. In the following April his second expedition started to colonise the newly-acquired territory, under the charge of Sir Richard Grenville, the hero of the *Revenge*. He was followed in September by Drake, who sailed from Plymouth, and spent the winter in the West Indies. Christmas was spent at St. Kitts, and on New Year's Day, 1586, he landed in Hispaniola, and took the town of St. Domingo, after which he swooped down on Carthagena, which was ransomed from his clutches for the sum of 110,000 ducats—a heavy price to pay. By May he had arrived off the coast of Florida, and then stood northward to visit the colonists in Virginia. He found them in a sorry

were fastened with a string. Being boiled or sodden they are a very good meate." He also gives similar descriptions of two other roots which he terms Okeopenauk, the size of a man's head, and must be eaten fresh; and Kaishucpenauk, as large as hen's eggs, but neither are esteemed by the natives as the Openauk.

Clusius suggested that this description might apply to the Potato; thus, translated freely from the *Historia*. "In the neighbourhood of Quito, besides Maize, the inhabitants have two other things by which they principally sustain life, namely, Papas, the roots being like tubers (Truffles) without any core or hard husk, which, when cooked, become as

meet with the word Hoppenes, which may be the same word differently transliterated as Hariot's Openauk, and the meaning given is Turnips, Onions, and the like.

This aspect of the question has not escaped the attention of the botanists of the United States. Dr. J. H. Trumbull, an authority on Indian dialects, in conjunction with Professor Asa Gray, published a paper in *Silliman's American Journal of Science*, in 1877, on *Helianthus tuberosus*; in their opinion *H. doronicoides* was the wild ancestor of the cultivated Jerusalem Artichoke, and that Hariot's Kaishucpenauk or Sun-tubers, may have been this. They go on to suggest that the same writer's

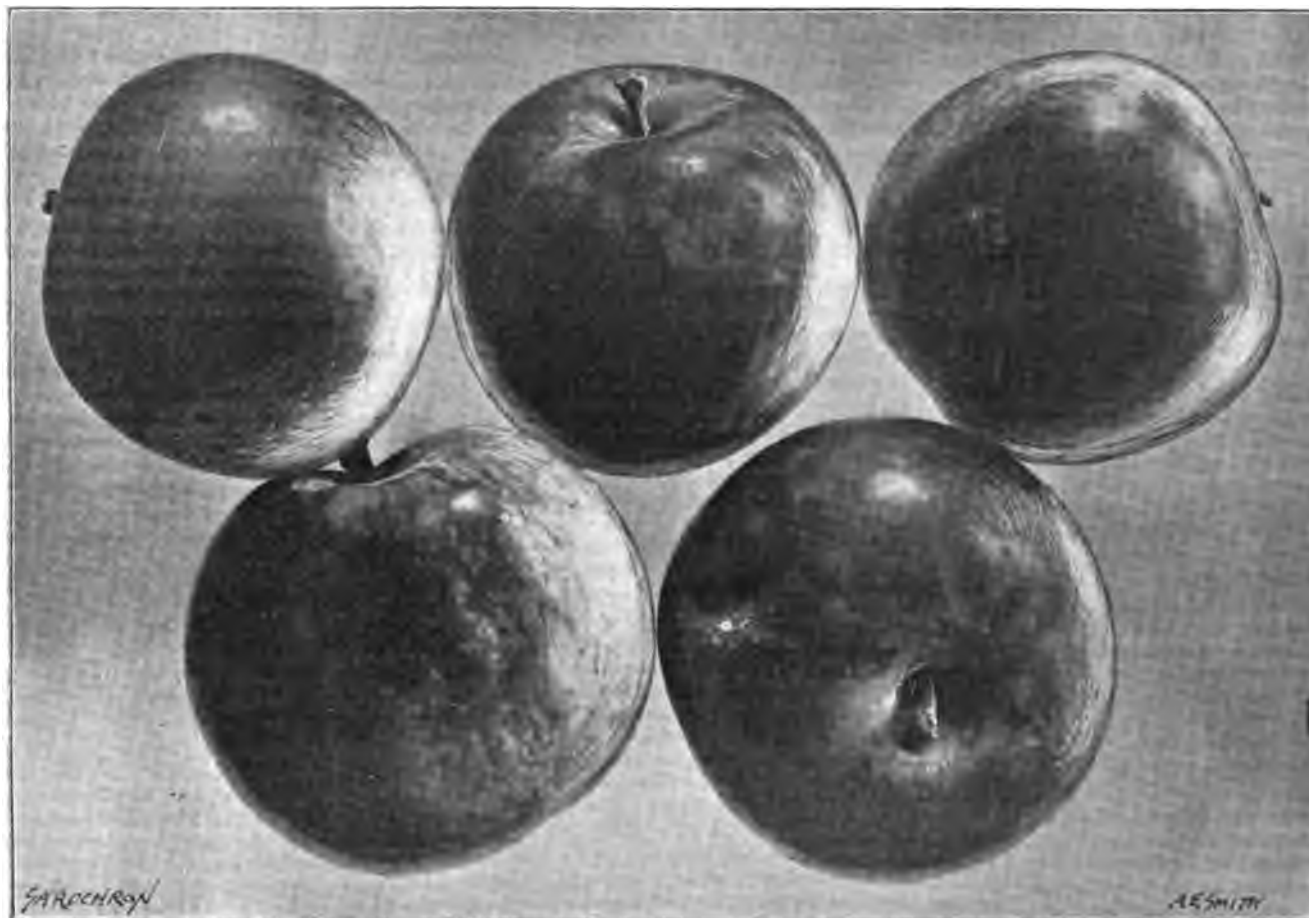


FIG. 57.—SOME AMERICAN HYBRID PLUMS, RAISED BY MR. BURBANK. (SEE P. 178.)

(Photographed, exact size, by Prof. ssor Waugh, Vermont, U.S.A.)

plight, anxiously expecting their relief ship, which had not reached them, and very desirous of quitting their quarters. Accordingly he took the whole colony aboard, including the governor, Ralph Lane, and after a speedy voyage of five weeks he reached his starting place, Plymouth, on July 28, 1586.

HARIOT.

Raleigh's agent, in this ill-starred enterprise, was Thomas Hariot, or Harriott, a mathematician; on his return to this country, he drew up an account of the new regions, and its natural productions and resources, in a work which forms a thin quarto, and was reprinted by De Bry, and Hakluyt, in their collections. In this little work, Hariot begins a chapter thus:—

"Of Rootes. Openauk are a kind of roots of round forme, some of the bignes of Walnuts, some far greater, which are found in moist and marish grounds growing many together in ropes, or as though they

tender as the inside of the Chestnut; dried in the sun they call them Chuno, and store them for use . . . The other is Quinoa (= *Chenopodium Quinoa*, Willd.). . . Agustin Zarate mentions the Papas, as also does Lopez de Gomara in his *Historia General de las Indias*, by whose accounts the roots do not seem very unlike those which the Virginians call Openauk."

From that time till quite recently, Hariot's statement thus started by Clusius, has been held to vouch for the presence of the wild Potato in Virginia, and Gerard has been supposed to have had his plants from Drake, but on somewhat slender grounds. It will be noticed that Hariot in his report speaks of at least two other subterranean esculents, and the names he gives show that the suffix penauk simply means tuber. The vocabularies of the Algonkian languages, drawn up about the time of Hariot's visit, are not full enough to help us much; but in a Swedish narrative we

Okeopenauk may be the *Tubera terre magnæ* of Clayton's *Flora Virginica*, called by some of the early settlers, Tuckahoo, and consequently the *Pachyma Cocos* of Fries, now known to be a sclerotium or hardened mass of fungous hyphæ. In the last place they think the ground-nuts or Openauk so vaguely described by Hariot to be the tubers of *Apios tuberosa*, Moench. Brereton in *Gosnold's Voyage to New England*, 1602, speaks of "great store of ground-nuts in all the Elizabeth Islands, forty together in a string, some of them as big as hens' eggs" (*Purchas*, iv. 1751). The Openauk of Hariot may therefore be referred to that, and unless some entirely new line of information should open up, which seems unlikely, we may consider these productions to be finally identified.

RALEIGH'S LAST EXPEDITION.

But this still leaves the original place of the Potato in doubt. The year 1588 found the entire

fleet of England engaged in repelling the Spanish Armada, and all were too busily engaged in a life and death struggle to organise any colonial enterprise. Raleigh's last expedition to Virginia sailed from England in 1589, to relieve the colony founded in 1587, but which could not be visited in the previous year, for reasons already mentioned. On reaching Virginia, no signs of the colonists were to be found. From this disastrous expedition, it is hardly likely that anything should have been brought home as samples of the produce of a country so fatal to ambitious projects; it was in 1590, therefore, that the last English vessels came back from Virginia, empty-handed, and nothing more was adventured till 1603, which is much too late a date to concern us. Clusius received at least one Virginian root in 1591, from his English correspondent, James Garet; it was *Smilax pseudo-smilax*, Linn., which he records in his *Historia* under the native name of Tsinaw, and figures from his own drawing. This will serve to show how long it sometimes took in those days for a new acquisition to be distributed. Then, too, it was in 1597 that Gerard published the following statement:—

"Of Indian Swallow wort. There groweth in that part of Virginia or Norembega, where our English men dwelled (intending there to erect a colony) a kind of Asclepias, or Swallow wort, which the Savages call Wisanck. . . . It groweth as before is rehearsed in the countries of Norembega, and now called Virginia by the H. sir Walter Raleigh, who hath bestowed great summes of monie in the discoverie thereof, where are dwelling at this present English men, if neither vntimely death by murdering, or pestilence, corrupt aire, bloodie fluxes, or some other mortall sickness hath not destroyed them."

And this was issued nearly eight years after Raleigh returned, as stated above, without having found any traces of his unfortunate countrymen! Could this paragraph have been written carelessly and allowed to stand? If so, it might explain much in Gerard's statements about the origin of his Potatoes.

We have already seen that Clusius first knew of the Potato in 1588, and by that time there was no possible chance of Gerard getting any plant direct from Virginia till long after the publication of his *Herball*. His statement beginning "Since when," &c., seems, therefore, to be absolutely incorrect, and if we acquit him of intentional fraud, he must be held guilty of gross carelessness. Although the Potato could not have been brought from that country, there is the possibility, and even the strong probability, that the original stock came from some captured town or ship. Grenville took two prizes when on his voyage to Virginia. Drake, in the relieving fleet, sacked Carthage, at a time when the cultivation of the Potato had long before reached as far north as New Grenada; and if Drake did really bring the Potato and the Tobacco with him in 1586, it could only have been in this manner.

Objection may possibly be taken to this, inasmuch as Gerard might have received his plant from Clusius, directly, or by way of a friend as the medium. The answer to this is, that Gerard had but few foreign friends, and Clusius was not one of them; then, as the obvious link between Clusius and Gerard was Garet, we have seen above that the Potato did not reach our shores by that channel. A further point which M. Roze indicates is, that Gerard's plant was seemingly a yellow-skinned variety, while Clusius's was as certainly red-skinned; moreover, the two woodcuts, of the *Herball* (fig. 51, p. 163) and the *Historia* (fig. 50, p. 162), are of plainly different varieties. If Clusius did not choose to engrave the figure which Garet sent from London, which must have come from a sister stock, or even from Gerard's own garden, it was because he did not think the drawing resembled his plant sufficiently, and so preferred to have his sketch from the plant grown by him.

CONCLUSIONS

To sum up, Gerard seems to have obtained his plant, if not in 1586, yet very soon after; certainly he could not have openly asserted its Virginian origin unless there had been a strong probability

of his statement being believed, while from 1586 to 1603 there seems no direct channel by which Virginian plants could have reached our shores. On the other hand, there were abundant opportunities of getting produce from the Spanish possessions. Drake, after his eventful voyage which ended in 1580, and the fame of which drew Clusius to this country, was actively engaged in fighting the Spaniards, capturing their vessels, and harrying their towns; it is from this direction that the Potato must have come to us. It is quite conceivable that the Spaniards had become aware of the utility of the tubers at a comparatively early period of their American career; and that their ships, which brought home the treasures of the Spanish possessions, would also bring with them the curiosities. Furthermore, the use of the Potato on board ship as a preventative of scurvy on the protracted voyages of those days, might have been perceived; and if many Spanish vessels carried a stock of these tubers, one at least may very well have fallen into the hands of Drake, whose exploits in Europe and Spanish America had caused his name to be feared and hated by every Spanish merchant and sailor. B. D. J.

ALPINE GARDEN.

SAXIFRAGA APICULATA.

WHEN regarded from the decorative point of view, I take this to be the most valuable of the winter-flowering Saxifrages. These are naturally very few, but they are followed quickly by one or two others that perhaps have more claim to be early spring flowering. What is chiefly valued in this plant is its abundant and very early flowering. Quite soon in the month of December some large tufts promised a real display in my garden, which all at once was apparently spoiled by the frosts in that month. In spite of this mishap, they attempted to flower, but this came to nothing by reason of the severe wintry weather. Then for a time the plants were at a standstill, and I feared that a general "blindness" had ensued. In this view I was wrong, for the plants are just now a mass of the pale straw (of the oldest flowers), and the delightful full primrose of the younger or later-expanded flowers. One plant alone carries upwards of eighty of its 3-inch scapes, and as the latter often contains as many as seven or eight flowers each, some idea may be obtained of the real beauty of this dwarf floral carpet. I would not trouble your readers with a note about this well-known plant except to call attention to its beauty, great freedom to flower, and to its thorough hardiness. It is so free in growth, too, that large spaces may quickly be covered with a minimum of care. Chief among its requirements being partial shade, and plenty of moisture at the root in the spring. E. Jenkins, Hampton Hill.

CULTURAL MEMORANDA.

CLERODENDRON BALFOURIANUM.

THE month of March is the latest period at which this species should be pruned and re-potted, and the latter part of February is not too early for plants required to flower betimes. The kind of pruning practised generally should be that known as the spur, and long leading growths should be shortened back to ripe wood. Clerodendrons succeed in a moist stove whilst growing, and should be plunged in a leaf-bed for some few weeks after being started. In re-potting the plant, shake off a large proportion of the exhausted soil, then cut back somewhat the strongest roots. Employ a clean, well-drained pot of any size up to 18 inches in diameter. The potting compost may consist of fibrous peat, loam, and one-eighth of the whole of rotten, dry cow-dung in equal proportion, together with silver-sand, bone-meal, and charcoal broken finely.

Established plants are benefited by being afforded farmyard liquid, alternately with clear rain-water. A temperature of 60° by night, and 70° to 80° by day, may be afforded, fresh air being freely admitted in mild and warm weather. About midsummer the plants should be placed in the intermediate-house, or even in a cool conservatory. The treatment of the shrubby species of *Clerodendron* is similar to the above as regards resting, pruning, &c., but being more robust growers, more loam should be used in the potting soil, and the pruning should be severer. If large specimens of *C. fallax*, *C. Bethunianum*, *C. hastatum*, and *C. paniculatum* are required, plants of one to two years old should be placed to the number of four or five in a 12-inch pot, and grown on without dividing them.

These species may be propagated from cuttings taken with a heel, and by seed, which, if struck or sown in January, will flower in the autumn of the same year.

The climbing species may be raised from cuttings of matured shoots inserted in the autumn, or some of the younger strong shoots may be taken off with a heel when they are 3 inches in length, and inserted in pots filled with sandy soil, which should be plunged in a bottom-heat bed. H. T. Martin, Stoneleigh.

CENTROPOGON LUCYANUS.

This useful winter-flowering plant is a hybrid raised in 1856, by M. Desponde, of Marseilles, between *C. fastuosum* and *Siphocampylus betulaefolius*. Although strictly speaking, not a cool house plant, it may be transferred to the cool conservatory when in flower, and will then remain in full beauty for a considerable time. Cuttings struck in February and March afford plants which will flower towards the end of the month of November, and by taking cuttings at various times, plants may be had in flower throughout the months of December and January. So soon as its beauty is past, the plant should be cut back, when new shoots will form, which may be taken off and prepared as cuttings. The cuttings should be placed several together in 6-inch pots filled with light, sandy soil, and plunged in a bottom-heat bed in the propagating pit. When rooted, pot them off in small 60's, and shift on till they come into pots of 6 inches diameter, in which they may flower. The best kind of soil is one that consists of loam, peat, and silver sand. During the spring months, the intermediate house is a suitable place for the plants, but after the final potting a gradual inuring to a cooler temperature should be adopted throughout, and cold frame treatment afforded throughout the summer.

On the approach of cold weather, return the plants to the intermediate house. Water should be freely afforded during the season of active growth, but in the months from October onwards, it should be applied in much less quantity, or the lower leaves will become disfigured and fall off. H. H. T.

EARLY FRENCH BEANS.

In my earlier note on the forcing of French Beans in midwinter, I casually touched upon the poorness of the returns as compared with the outlay, but at this season there need be no apprehension as to cropping if timely shelter be afforded the plants at the start. In early spring there is never any great choice in the matter of vegetables, and the earlier that French Beans can be obtained, the greater their appreciation when brought to table. From the month of March to the middle of the next is a suitable season for sowing, a quick-podding variety being chosen, and one that is a robust but not a tall grower. I have grown Veitch's Early Favourite as a first crop, a dwarf and remarkably early variety, in preference to Ne Plus Ultra, Sutton's Forcing, and Sir J. Paxton, which are lacking in robustness, although they are excellent for furnishing early forced Beans.

At Syon the first sowing is made in the third week in March, and the plants are put out in the borders in the last week of April, weather

permitting. Nothing is gained by sowing earlier, the plants becoming leggy, and less able to bear the vicissitudes of the weather. We sow in pots filled with a light sort of soil, and place in cold frames, and make use of sun-heat as much as possible from the time of sowing till germination is perfect; keeping the frames close by day and night, and protecting at night with mats and litter.

From six to nine seeds are put into each pot, and the plants are reduced to four or five of the strongest. If the soil was moist at the time of sowing the seeds, no water will be needed till germination has taken place, and very little then for the first few days. There should be no coddling of the plants, and air should be afforded night and day for a few days before the plants are planted out of doors. As places in which to plant these early Beans, the Vine-borders and the space between the Peach-trees at the foot of south walls

development, in some degree of the nature which is now generally described by peloria. The chief evidence of this abnormality consists in the presence on each of the petals of a small white hook-like process (shown in the illustration), which would represent a portion of a rudimentary callus. It is a singular, bizarre-looking flower, the white sepals faintly tinged with yellow, being those of a typical *O. crispum*, while the petals and lip are slightly harder in texture, and rolled back at the edges. The chief characteristic is in the colouring of the petals, the greater part of whose surface is covered with a bright brownish-red tint, a few spots of the same colour also decorating the tips, though they are not visible when viewing the flower from the front. The spotting on the tips of the petals is visible, however, on the reverse side; the surface colour of the body of the petals also faintly shows through. The lip, which is rather



FIG. 58.—*ODONTOGLOSSUM CRISPUM* "OAKFIELD SUNRISE."

are excellent. The plants are put out in deep drills which are not quite filled in, as thereby the wind is warded off till such time as they have grown stronger. If some fine soil can be spared to cover the roots, it is an advantage; and portable protection of some kind is another, and it may consist of frame-lights, hand-glasses, thatched-hurdles, canvas, &c., put over the plants nightly. Pickings from these plants can be obtained three weeks earlier than is possible by sowings made in the open ground in the usual manner. *G. Wythes*.

ODONTOGLOSSUM CRISPUM "OAKFIELD SUNRISE."

OUR illustration (fig. 58) gives a representation of a very remarkable *Odontoglossum*, exhibited by Thos. Baxter, Esq., Oakfield, Morecambe (gr., Mr. R. Roberts), at the meeting of the Royal Horticultural Society, March 13, as *O. crispum Surprise*, the name being afterwards changed to *O. c. Oakfield Sunrise*, as it was found that the former name had been previously used. The whole arrangement of the flower and its colouring seem to indicate abnormal

narrow, is marked at the base with some lines of a reddish-brown tint, and small blotches of the same colour are noted on each side of the blade, which has a notched margin. The flowers exhibit a very extraordinary variation, the like of which has not been observed previously. It will be interesting to learn whether the peculiarities observed remain constant or otherwise. The plant received an Award of Merit.

NOTES ON SOME PHASES IN TOMATO CULTIVATION.

(Concluded from p. 149.)

MANURING.—This important item in the cultivation of the Tomato I do not think has received among growers for market the careful attention it deserves. After so many years' experience in the cultivation of the plant on a large scale, it is astonishing to find at the present time so many instances of the excessive use of crude, unpurified manures which too often produce the most disastrous results. On the Sussex littoral, where probably there are more Tomatoes produced than

in any other county of England, the soil, generally speaking, is a deep, unctuous loam, requiring but little manure for any crop, and least of all that of the Tomato; and yet we find at the present time not a few market growers actually using crude manure fresh from the London stables in their Tomato-houses at the rate of from 80 to 90 tons per acre, and subsequently expressing wonder and surprise when a coarse, rank growth is the result, frequently accompanied by disease, and by the plants' refusal to "set," what is called locally the bottom trusses, which are always the heaviest and best when obtained under good cultivation.

As a matter of fact, the Tomato-plant is extremely fastidious in the way of food, and impatient of any manure of a crude or unpurified nature, showing its dislike to such a form of nutrition by an unnatural growth, the shedding of its flowers on the lower nodes, and the want of power to resist disease in its various forms. Besides all this, when too much manure is applied, the fruit is wanting in that firmness and delicate flavour so much prized. Rather would I refrain from giving manure of any kind in the cultivation of the Tomato plant than I would apply that, even in small quantities, of a foul and offensive nature, as I have frequently seen done.

In support of my position, I may state that I could name a grower of the Tomato plant under glass in Sussex who, to my certain knowledge, has for the past seven years grown very fine crops of fruit in the same houses without any renewal of soil whatever, with very little manure, and absolutely without disease of any kind in the plants; the latter fact being, I am convinced, due to his system of cultivation, which may be described briefly as follows:—The ground is simply forked over in the usual way (not trenched), after a thin coating of spent Mushroom-manure and some well-sweetened road-grit has been spread over the surface. The plants from 48-sized pots are planted, watering, and the removal of suckers is attended to, and nothing more is done till the plants set their "bottom trusses" which invariably happens under the above treatment. When the fruit obtains a goodly size, and faint indications of ripening set in, then, and not till then, liquid manure of some kind is applied as a stimulant, moderately, and not oftener than once in eight days. This may take the form of liquid from the soaking of animal manures, soot-water, or artificial stimulants, Canary Island guano being a favourite. In the instance mentioned I have, for the past seven seasons, had personal opportunities of seeing the excellent results of the above mode of cultivation, the crops of fruit being all that could possibly be desired.

There are very many cultivators, I am aware, who utterly ignore spent Mushroom-manure as a fertiliser, and who would rather pay high prices for the crude and unpurified material than use one particle of it. Yet in the same breath that they inform you it is of no utility whatever in general cultivation, they are careful to add that it is "very good for potting purposes." I confess that it has always puzzled me to find out why it should be such an excellent thing for pot plants, and the reverse for Cabbages and Cauliflowers. I once ruined a crop of outdoor Tomatoes by giving the plants an overdose of Mushroom-manure, the result being any quantity of leaves and stem, but very little fruit. I have grown Celery of excellent size and quality, and indeed many other kinds of vegetables with nothing but spent Mushroom-manure.

On lighter soils than what I might term the Tomato zone of Sussex, more manure may be used with possible advantage, but even on the lightest soils I would not recommend the use of heavy dressings before digging and planting.

RIPENING OF PARTLY COLOURED AND GREEN FRUIT IN LATE AUTUMN.

Loss, to a considerable extent, is frequently incurred by the refusal of green fruit to colour and ripen on the plants in late autumn, and not in

frequently the plants are completely denuded of leaves with the object of exposing the fruit to the rays of the sun, and thus assist Nature in bringing the fruit to maturity. The more common method, however, is to strip the plants of all fruit, green and partly coloured alike, and expose them to the sunlight in shallow trays in houses close under the glass. The average English summer, be it ever so fine, comes to an abrupt and sudden termination, and the grower anxious to save as much of his crop as possible, adopts one or other of the two methods named above. Both these methods are, I venture to think, faulty and tend to shrivelling, thickening of the skin, and general unwholesomeness of the fruit.

Although counter to the generally accepted theory that sunlight is absolutely necessary to the ripening of most kinds of fruits, my experience teaches me that the best way to ripen immature Tomatos is, after gathering, to keep them altogether in the dark, in trays, in some warm and comfortable position where the day and night temperature is, as near as possible, equal. By this treatment they will be found to ripen quicker, obtain a better colour, and the loss of nutritive qualities is reduced to a minimum. Even in an ordinary way, during summer, immature Tomatos will be found to develop, after gathering, a much plumper and richer appearance if kept absolutely in the dark, than when exposed to the rays of the sun. In late autumn and early winter it is simply foolish to expect the immature fruit to develop any degree of wholesome ripeness if exposed in trays on shelves close to the glass, with a house-temperature ranging perhaps between 20° and 30°. It may be urged that heat could easily be applied during the night or in cold weather, but this, I have found, does not compensate for the damage done by exposure to sunlight, which seems to me to eat all goodness out of the fruit.

In late autumn, when unheated Tomato-houses are not urgently required for other purposes, I have found it an even better plan than the above to allow, as cool, cloudy weather approaches, instead of pulling up the plants, the laterals to "run." In a short time the glass will be quite obscured with a dense mass of foliage, quite capable of keeping out several degrees of frost, and maintaining a more equable temperature in the house. Ripening under these conditions will be found to go on far into the winter, slowly, it is true, but steadily, and without the loss in the fruit of those qualities so essential to its wholesomeness.

With reference to the ripening of fruit in the dark, I may be allowed to mention rather a curious fact with regard to the ripening of the Banana-fruit by the natives of India. They never allow the fruit to ripen on the plant, but invariably cut the bunches in a fully-developed but perfectly green state, and then suspend them, not out-of-doors in the sunshine, but in the shade and darkness of their verandahs and rooms, where they develop a rich colour and fine flavour. Removing wholesale the leaves of the Tomato-plant in all stages of its growth, although not so much practiced now as some few years ago, with a view of accelerating the ripening of the fruit by exposure, is, I think, a fatal mistake, superinducing disease, robbing the plant of its lungs, and retarding instead of hastening the ripening of the fruit.

PRUNING.

This is a very simple process, consisting merely in topping and removing side-shoots or suckers. In high-roofed Tomato-houses, I think that the plants are frequently allowed to attain too great a height, which results in a large quantity of fruit being found, when the late autumn arrives, on the tops of the stems, about the size of marbles, which by no treatment can be induced to swell and ripen, and which have only served the purpose of robbing the more developed fruit lower down of nourishment they ought to have had.

As to whether the plants should be allowed to

develop two or more fruiting shoots, or kept to a single stem, I consider this question has been clearly and finally answered by Mr. E. H. Jenkins, on p. 196 of the *Gardeners' Chronicle*, and I think it applies to outdoor as well as indoor cultivation. In outdoor culture, I cannot help thinking that it is a mistake attempting to get a large crop by allowing the plants to attain too great a height; rather would I be content with two bunches per plant than run the risk of retarding ripening by allowing three or four to remain.

In conclusion, I would beg to offer the following items of advice to beginners in the art of Tomato-growing in the open:—

1. Beware of an overdose of manure, especially if unpurified.
2. Plant nothing but strong plants, and as early as possible.
3. Keep the plants to one stem, and be content with not more than two or three bunches of fruit to a plant.
4. On no account remove the leaves from the plants during any stage of their growth.
5. Plant at wide distances apart, so as to admit plenty of air and light. *J. Lowrie.*

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen, S.W.

Re-potting Cattleyas.—No operation in the cultivation of Orchids needs to be performed with greater skill than the re-potting of established Cattleyas. The removal of the plants from the old receptacles is a work of extreme difficulty, owing to the clinging character of the roots; and in cases where it is desirable to transfer the plants to receptacles of lesser capacity, the difficulty is increased. I believe that the operation may be done advantageously in winter or summer, but a time should be chosen when new roots are about to be made from the base of the last-made pseudo-bulbs.

Suitable Receptacles are numerous and varied in shape and substance, but ordinary pots, pans, and teak-wood baskets, I consider can be used with great success. Baskets, whether of the pot or ordinary shape, give the best results until the plants have spread beyond their limit. Thereafter difficulties arise which it is not easy to overcome, for the roots of the plants, and the bars of the basket, have become united, that to extract the plant without serious damage resulting, is an utter impossibility, and to insert the basket bodily into another one of larger size is very unwise. Therefore, I prefer earthenware pots or pans, which may be broken, and some of the pieces removed before inserting the remainder in a new one. The old receptacles in this case become an aid to drainage. Receptacles that need a considerable amount of rooting material should be provided with perforations at the side near the base to admit air, and allow of the rapid exit of water. One of the best pans that has come under my notice is "Sander's Perfect Orchid-pan," the base of which is like that of a champagne-bottle, with numerous apertures. These do not need a large quantity of drainage material, and are light for suspending.

Potting Material.—Although various so-called substitutes for Orchid-peat have been tried, I know of none that is an unqualified success in England, and except as an experiment, nothing but peat and sphagnum-moss should be used as a rooting medium, beyond the necessary drainage material. The peat should be freed from most of the thick rhizomes of bracken, and from as much of the fine particles as will pass through a fine mesh sieve. The rhizomes may be worked in immediately above the drainage in the case of large specimens, but none should protrude through the surface, as they would give an untidy appearance. Use two parts of peat to one of sphagnum-moss. For small plants the ingredients may be mixed before use, but for others they are best used separately, so that the peat may remain as lumpy as is necessary.

How to Pot.—Allow the plants to become dry, so that the old material may be picked out readily, and that their condition may be known when completed. Remove as much of the old material

as possible, crack the pot where no adhering roots are present outside, and remove a piece here and there, and so insert the ball in a new receptacle, that the growing base is raised well above the pot. Insert sufficient crooks in an upright position to fill the desired space, and pack in the peat and sphagnum-moss to the depth of an inch and a half.

Subsequent treatment.—Afford water sparingly until new roots have pushed well into the material. At this season, and all through the summer, shade and atmospheric moisture should be increased for a short time after this operation.

FRUITS UNDER GLASS.

By J. ROBERTS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Vines.—In the earliest house, where the Vines have reached full-leaf development, and the fruit has been thinned, liberal applications of liquid-manure will be needed, and any approach to dryness at the roots must be carefully avoided, as ill-nourished Vines become liable to red-spider, scorching, shanking, &c. Maintain equable atmospheric moisture by damping down the surfaces in the house at sunrise, and in early afternoon, or closing time. At sunset the top ventilators may be opened 1 inch for the night. Houses containing Vines at the flowering stage may now be kept 65° at night and 70° by day, and be given slight ventilation day and night until the setting is completed. Muscat varieties will require a temperature 5° higher than these figures. The flowers should be carefully fertilised about mid-day, first removing any capsules that adhere to the stigmas, which is very common in the variety Canon Hall Muscat. Vines that have just reached the thinning stage should be given early and daily attention, thinning first the earliest bunches, and following them up to a finish. Large and unshapely bunches should be trimmed into good shape before the berries have weighed them down. Such pruning of the ugly shoulders, &c., will be amply repaid in finer berries, and a more uniform excellence throughout the house. Later houses, in which the Vines are just breaking, will require attention to disbudding, but this should not be done very liberally, until it can be decided which will make the finest bunches. Syringe the rods twice a day, and keep a genial atmosphere. If the house be occasionally damped down with clear soot-water, this will give off a little ammonia, which will benefit the young growth. A night temperature of 50° to 55°, and 60° by day, with an increase of 10° from sun-heat, will be sufficient. Let the Vines be ventilated freely by day when the weather is favourable. Where the roots of late Vines are in outside borders, these should be given a liberal dressing of bone-meal, burnt-ash, and nitrate of soda, forking the whole lightly into the border, covering the whole with fresh stable-dung.

THE FLOWER GARDEN.

By J. BEXBOW, Gardener to the Earl of Ilchester, Abbotbury Castle, Dorset.

Delayed Operations.—In many parts the wet state of the soil has hindered the work in the flower-garden, but the potting up bedding plants, cleaning of pots, pans, boxes, &c., the preparation of flower-stakes, and the needful propagation of plants, will have received timely attention. Advantage should be taken of fine weather for getting on with out-of-doors work, such as that of finishing the pointing over of the soil of the shrubberies. [Never dig the land deeply. ED.] Shrubs may still be planted, and in the case of deciduous species there should be no delay in doing this. To delay planting, excepting in the case of Hollies and Conifers, is to invite much labour and expense in the matters of syringing the heads, and affording water to the roots during the summer months. Let everything newly planted be securely fastened to stakes, or by means of guying-wires; and the space, often to be found after wind-rocking round the bases of the stems, filled up firmly with heavy loam.

Spring Bedding Plants and Bulbs.—All the spring flowers will benefit if the surface of the beds be lightly hoed, or stirred with a handfork, taking care in doing it not to injure the roots, but using a new rake instead if there is any risk of this occurring. Plants of the Carnation, Wallflower, Myosotis, Silene, Viola, and alpine Auricula, should first have the soil pressed firmly around them by the hand in order to prevent loss of plants, and the con-

sequent disfigurement of the beds. If the soil is not rich in plant food, apply bone-meal, or some of the so-called guanos, which are quicker in action than bone-meal before the beds are hoed. After the hoeing, &c., is finished, let the soil be made smooth and level with an iron rake.

The Trimming of Ivy.—Ivy on walls and trellises may now be safely cut back severely with a sickle, or in the case of Ivy that has not been pruned for some years, the *secateur* may be required. The fore-right shoots should be cut back close to the old stems and branches. If Ivy branches have broken away from a wall, strong wall-hooks should be freely used in refixing them to it. By pruning at this date, only a short period elapses before new growth covers the naked branches. Specimen Ivies grown as bushes or standards, and that growing over the stumps of trees should also come in for a careful pruning, misplaced shoots being cut back to a point where the wound is hidden by the foliage.

Pæony Culture.—The shrubby species should now be planted, if good floral results be looked for in the current year. Herbaceous species and varieties need a rich soil deeply dug, so as to ensure the necessary vigour. The plants succeed in strong fibrous-loam well enriched with decayed cow-dung. Pæonies have an advantage over many other species of plants, in that they will thrive and blossom in partial shade. Hence they may have plots allotted to them in out-of-the-way places, and shady parts of the shrubbery or the garden woodland. In such places the stations should be roomy, and free from the roots of timber trees and big shrubs. If a succession of flowers be required, let them be planted 3 feet apart, and cover the ground with *Megasea cordata* edged with *Cerastium tomentosum*; or plant the corms of *Gladiolus*, marking the site of each Pæony and *Gladiolus*, and thus prevent the crowns being injured when the soil is hoed.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener, Stoke Edith Park, Hereford.

Grafting may be commenced in the warmer parts of the country, as the sap has now become active. The practice of grafting is a ready means of effecting quick propagation of any particular or new variety of the Apple, Pear, Plum, or Cherry, although in the two last-named cases budding is now more largely employed. Some varieties of Pears need to be worked a second time, as they do not succeed perfectly when first grafted upon either Pear or Quince stock. Strong-growing Pears, such as *Beurré Bachelier*, *B. Bosc*, or *B. d'Amanlis*, form the best stocks with which to experiment in respect to the double grafting of Pears; and speaking from personal experience, their adoption results in a vast improvement both in growth and in the flavour of the fruit. Grafting is also of the greatest utility in country districts for converting orchard-trees that produce worthless crops of fruit, or which bear but indifferently, into more profitable specimens in a comparatively short space of time. If such trees are healthy and vigorous, regrafting them with the best sorts is more profitable than cutting them down would be, as they are capable of bearing crops in a very much shorter time.

Varieties to Graft.—If it is intended to cultivate fruit for the market, only scions from such varieties as are known to succeed in the district should be made use of. Such varieties as Lord Suffield, Lord Grosvenor, Ecklinville, King of the Pippins, Lord Derby, Cox's Pomona, Lady Henniker, Wellington, Tyler's Kernel, Warner's King, Worcester Pearmain, Stirling Castle, and New Northern Greening succeed in most fruit-growing districts. They are all free croppers, and the fruits sell readily. Blenheim Orange is a longer time before coming into bearing, but once established it bears well. Such attractive varieties as Gascoigne's Seedling, Beauman's Reinette, Peasegood's Nonsuch, and others, may be increased in situations where they succeed, as the fruits command good prices. For a private garden most of the choicer varieties should be included.

Preparations for the Work.—Where there are but a few stocks to be grafted, clay may be employed for excluding air and moisture from the scions; but otherwise grafting-wax will be the best material to use, as this not only effectually encloses the scion, but needs no after attention. Grafting-wax can be bought ready for use, or it may be made at home, the latter being the cheapest course if a large quantity is required. If clay is to be used

it should be well kneaded beforehand, and a little chaff mixed with it, which, in a measure, will prevent the clay from cracking and falling off. Until required for use the clay should be kept covered up to prevent it becoming dry. Just before actual grafting begins, the stocks and trees should be cut back to where it is desired to insert the scions, and the wounds made smooth with a sharp knife. If there is much grafting to be done, a second person or a lad should follow to perform the claying or waxing as the case may be.

Methods of grafting.—Whip-grafting is the method generally adopted in gardens, and crown and wedge-grafting for orchard-trees. There are also several other methods which the exigencies of space will not permit me to describe here. A sharp knife is needed for preparing both scions and stocks, and whichever method of grafting be adopted, it should be done expeditiously, and care

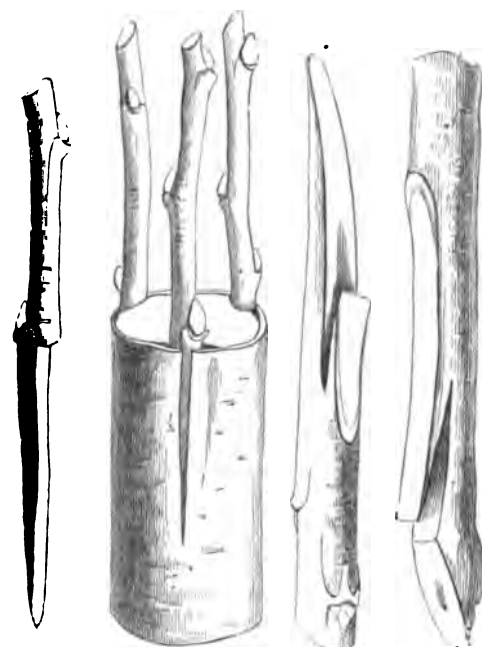


FIG. 59.—
CROWN-GRAFTING.

FIG. 60.—
WHIP-GRAFTING.

taken to see that the bark of the scion and that of the stock correspond, at least, on one side, as future success will depend entirely on the observance of these rules.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Potatoes.—For affording an early supply, some sets of early cropping varieties may now be planted on warm borders, the soil of which was dug or bastard-trenched two months or longer ago. In planting the border, deep drills should be drawn at 2 feet apart, the sets being dropped at a distance of 1 foot apart, and about 6 inches below the ground-level, the drills being filled in with the feet or a broad draw-hoe. The sets are best when of middle size, and with the eyes just pushing forth. Veitch's Early Ashleaf, Ringleader, and Sharpe's Victor are excellent earlies, of a dwarf and compact style of growth.

Potatoes in frames.—If the tops are strong, and they have reached nearly to the glass-lights, earthing up may be carried out, but as the roots are near to the surface of the beds, it is prudent to add more soil to the bed than to mould up with what can be obtained by scraping the surface. The added soil should consist of light loam and sifted leaf-mould. This done, the haulm should be pressed down, and the bed afforded a light sprinkling of water, which may be repeated occasionally.

Spear Mint.—In most soils it is advisable to make a new plantation of this pot-herb once in three

years. The plot to be planted, which should be in good heart and not recently manured, should be trenched 2 spits deep, and when in workable condition it should be levelled with the spade and finished off with the rake. A part of the old Mint-bed should then be dug up, and strong shoots with roots attached taken which should be dibbled in about 1 foot apart. If the weather be dry at the time of planting, water should be afforded, and its use continued till the plants are established. The old bed of Mint should not be destroyed till the new one has become productive. A Mint-bed two years old will be benefited by an application of fine, rich mould to the surface.

Tarragon.—This plant rarely survives a very hard winter unless planted under fruit-trees, and it always exhausts the soil quickly, requiring to be replanted almost annually. The roots should be lifted before winter sets in, and boxed or otherwise protected, and late in February these roots should be placed in cold frames, and when strong cuttings are obtainable, these should be taken and struck under hand-lights. When the cuttings are well rooted, plant them out in rows 18 inches apart in soil that has not been recently manured, but which is well drained, and of a light nature. Slugs, being partial to the young shoots, must be sought out and killed. There are two kinds of Tarragon, the one with tall coarse growth and narrow leaves, the other of dwarfier growth, with fewer leaves and a more aromatic flavour.

Beans, French.—A sowing should now be made to succeed those under pot-culture. Disused hot-bed frames may be utilised after removing the old soil, &c., and affording instead a compost consisting of equal parts of loam, leaf-mould, old mortar rubbish, and some half-inch bones, to a depth of 6 inches, and brought up to about 14 inches from the glass. The frame should be kept close till the fresh soil is warmed throughout, when the seed may be sown (dibbled) 12 inches apart, 2 inches deep, leaving 18 inches between each row. Canadian Wonder is a good variety for frame culture.

PLANTS UNDER GLASS.

By T. EDWARDS, Foreman, Royal Plant Gardens, Frogmore.

Begonias with Fibrous Roots.—As soon as flowering is past, the repotting and raising of a stock of plants for winter-flowering should receive attention. Plants of *B. manicata*, if not too large, should be repotted, using as a potting compost fibrous loam two parts, and leaf-mould one part, and enough sand to give porosity, continuing to grow the plant in heat. If the number of plants of this species is to be increased, cuttings may be taken at this season, these making nice plants in one season. For ordinary purposes of decoration, 5-inch pots are sufficiently large. Select medium-sized shoots, about 4 inches in length, remove two or three of the lower leaves, and cut across below a joint with a sharp knife, taking care not to bruise the stem or leaves. *B. hydrocotylifolia* should be propagated annually by means of rooted portions of the rhizomes, or from stem cuttings. When they have filled the small pots in which the cuttings were placed singly, repot them in 9-inch pots, and at this potting make use of some strong loam in the compost. When well established, place the plants in warm pits from which the artificial heat is shut off in July, August, and September. *B. nitida* should be struck from cuttings annually, and afforded a like treatment to the preceding species. If a suitable place on the wall of a plant-stove can be found them, the plants will, if planted in a border, furnish quantities of flowers for cutting purposes. *B. insignis*, *B. Haageana*, *B. Knowsleyana*, and *B. Weltoniensis*, require a lighter compost than the foregoing, and to be placed finally in pots not larger than 4½" and 3½". No time should be lost in putting in leaves or cuttings—leaves by preference of *B. Gloire de Lorraine*, while fresh; if deferred, the leaves do not root so readily. The cutting-pans or pots should be filled with a mixture of equal parts, peat, sand, and chopped sphagnum-moss; which should be afforded water, and the cuttings placed edgewise about an inch apart, so that the leaves rest upon the soil. The pans, &c., should be plunged to the rim in a hot-bed-frame, and the syringe frequently applied lightly over the foliage. This variety likes a place on a shelf in the hotter part of the stove. Its habit and freedom to flower fit it admirably for planting in hanging baskets.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, MARCH 27 { Royal Horticultural Society's Committees.

SALES.

MONDAY, MAR. 26.—Roses, Greenhouse Plants, Carnations, Hardy Perennials, &c., at Protheroe & Morris' Rooms.

WEDNESDAY, MAR. 28.—Japanese Lilies, Ornamental and Decorative Plants, Spiræas, Roses, Herbaceous Plants, &c., at Protheroe & Morris' Rooms.

THURSDAY, MAR. 29.—Clearance Sale of Glass Erections, Piping, Roses, Fruit Stock, and other Stock and Sundries. By order of the executrix of the late Lord Penzance, by Protheroe & Morris.

FRIDAY, MAR. 30.—Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—44°5'.

ACTUAL TEMPERATURES:—

LONDON.—March 21 (6 P.M.): Max. 49°; Min. 33°.

March 22.—Cold wind; dull.

PROVINCES.—March 21 (6 P.M.): Max. 47°, Cornwall and S. Ireland; Min., 38°, N.E. Scotland.

The Manuring of Grass Land.

No more remarkable sight, in its way, can be seen than the experimental grass-plots at Rothamsted a little before the hay is cut. Band after band of varied colours—shades of green, blue, and yellow are presented, according to the nature and amount of the manure employed, and in response to the character of the season. For forty-four years these experiments have been carried out on a uniform plan, about seven acres of ground being devoted to the purpose. Hundreds of chemical analyses of the ash of the plants, more or less complete, have been made, together with similar analyses of the soil at varying depths. As it was soon observed that the plant-population of the plots varied greatly according to the nature of the manure employed, botanical censuses of each plot were taken, some partial, others as complete as they could be made, every little fragment of grass, or leguminous plant, or whatever it might be, being picked out of a carefully-prepared sample, so that it became possible not only to count the number of species, but also to determine the proportion in which each species existed on each plot. The records of so vast a series of experiments are necessarily extremely voluminous, but Sir JOHN LAWES and Sir HENRY GILBERT, nothing daunted by what other people would think overwhelming, are engaged in tabulating the results, summarising them and drawing inferences from them.

The agricultural results were dealt with in 1879, the botanical results in 1880, and now we have in the *Philosophical Transactions of the Royal Society*, vol. 192 (1900), p. 139, the first part of the chemical results. The chemical composition of the ash is found, as might have been anticipated, to depend not only on the soil and its contents, but notably on the nature and proportion of the plants growing on the plots. The details and tables are much too extensive to be properly discussed here. There are, however, certain points of great interest to cultivators generally to which we may make

passing allusion. In the unmanured plots the number of species is much the greatest (about forty-eight), the struggle for life is greatest, and there is no marked predominance of one family of plants over another.

Under the influence of various manures some species are driven out more or less completely, and the others, no longer subjected to such severe competition, attain the upper hand. Thus, in some of the plots where nitrogenous-manures and mineral-manures are used in combination, the number of species is reduced to nineteen, or even fifteen, but in all these cases the percentage of grassy herbage is very high, in one case over ninety-six per cent. of grassy herbage was noted, while the leguminous and weedy herbage was actually and proportionately diminished.

The condition of the plant is also greatly affected—under the influence of some manures a great relative tendency to the formation of woody stem and toward the early ripening of the seed is observable, whilst in others it is the foliage which is specially encouraged. The influence of season is shown in the case of Wheat. It is shown that the composition of the grain may vary much more when grown in different seasons with the same manure than when grown under the influence of very different manures in the same season. "The composition of the entire plant reflects, more or less closely, the supplies at its command, but the final product—the seed—has a fairly uniform composition, while the composition of the straw varies, within wide limits, according to the supply."

Nitrogenous-manures greatly increase the actual and proportionate amounts of the grasses, and if used in excessive quantities, the herbage will be characteristically leafy, and of an abnormally dark green colour, there being an abnormally high proportion of nitrogen in the dry substance. If, with the nitrogen, a plentiful supply of mineral constituents, especially potash, be afforded, the herbage will develop much stem, and show much tendency to flowering, seeding, and ripening.

Turning to the result of the analyses of the separated gramineous, leguminous, and miscellaneous herbage, we are told that the ash of the grasses contains much silica, comparatively little lime, much potash, and but little carbonic acid. The leguminous herbage contains scarcely any silica, much lime, relatively little potash, but a large amount of carbonic acid, representing probably some more complex organic acid destroyed in burning the ash. The miscellaneous weedy herbage contains little silica, lime, or potash, but a considerable amount of carbonic acid.

Potash and some other bases, whose office is not definitely known, are not only concerned in the formation of carbo-hydrates (starch, &c.), but they are carriers of nitric acid, so that a large proportion of the nitrogen of plants is derived from nitrates. Here we must leave the subject for the present, referring the reader to the original paper for details and inferences, for which we cannot now afford further space.

We have said enough to show how greatly these researches bear on the cultivation of plants, and the application of appropriate manures in suitable quantities.

THE following letter from the Director of the Royal Gardens, Kew, relating to the List referred to in our last issue, will be read with great interest:—

"I am glad to find that the *Gardeners' Chronicle* confirms my belief that the publica-

tion of a synoptic list of the published names of garden plants will be acceptable to the horticultural world. Its preparation was prompted in the first instance by our own necessities. Those who now have the opportunity of using it have to thank the Government for enabling me to place it at their disposal. As it has been received so sympathetically, I should like to give a few explanations.

1. I regret that it could not be issued at a cheaper price; but I need hardly say that there is no money in it. The Stationery Office inform me that the printing was expensive, as it was unusual work for Government printers. The price charged merely covers the cost of paper and printing.

2. The work of compilation has been done at odd times by the staff of my office. It may be interesting to mention that the tedious work of sorting the slips, which were of course far more numerous than the names, was done during a spell of bad weather by our women gardeners.

3. The list has no pretention to any scientific value; it is a mere index to garden literature. Everyone who has attempted to study a group of plants, either in the study or the garden, was liable to be haunted by floating names not readily to be run down. The search for the original publication of these is usually exasperating. The list only proposes to spare the strain on the temper.

4. I have been asked why authorities and dates are omitted. I can only say that I reluctantly arrived at the conclusion that this was inevitable. The vast bulk of the names of garden plants are published anonymously. To merely repeat the word "Hort." some thousands of times would probably have resulted in the printers throwing up the job. To attempt to attribute the names by conjecture to individuals would have required an amount of detailed research which it was evident would strangle the whole project even if we could have spared the time. The same difficulty, though in a less degree, applied to dates.

Half a loaf is better than no bread. The first citation will put anyone who wants to trace the history of a plant on the track; and that is the most under the circumstances that we could do.

5. We have preserved at Kew, where it fills one side of a room in our very limited space, the original manuscript of the *Index Kewensis*. This contains a great deal of matter which it was not possible to publish, or that truly "monumental" work would have exceeded all practicable bounds. The manuscript is, at any rate, available for those who carry on botanical research at Kew. But I should be very much surprised if it contains any appreciable number of garden names within the limits of the present list which are not included in it. *W. T. Thiselton-Dyer.*"

ROYAL HORTICULTURAL SOCIETY.—

To the Editor of the "*Gardeners' Chronicle*."

ROYAL HORTICULTURAL SOCIETY,
117, VICTORIA STREET, S.W.

"SIR,—On behalf of the Council of the Royal Horticultural Society, and in order to allay any anxiety that may be felt by the Fellows, I shall be obliged if you will publish the following statement:—

"The General Meeting of the Society held on February 13, having unanimously adopted the proposal of the Council to celebrate the centenary of the Society by the removal of the Society's gardens from Chiswick to some spot where the atmosphere is less charged with smoke, the

Council have inspected several proposed sites, and have at least one still to investigate. The business is not one which can be hurriedly done; as soon as all the suggested sites have been properly considered by the Council, a definite proposal will be duly submitted to the Fellows.

"W. WILKS, Sec."

— The next meeting of the Committees of the Royal Horticultural Society will be held on Tuesday, March 27, in the Drill Hall, James Street, Westminster, from 1 to 5 P.M. A lecture on "Some

Selfe Leonard, Geo. Paul, &c. The discussion after dinner was on the hardiness of Tea Roses; it was opened by Mr. GEO. PAUL, V.M.H., whose long experience in the growing of this beautiful section enabled him to speak with authority. An interesting discussion (in which many of the members joined) followed the reading of the paper, and a cordial vote of thanks was given to Mr. PAUL. The question has been a good deal before the public lately, and it is hoped that Mr. PAUL's paper will appear in the *Rosarian's Year Book*, for 1901.

perature, and in water at a temperature of 53° Cent., for five minutes' duration, without being injured, although it is quite sufficient to kill both insects and eggs. The adoption of this practical and simple method is also recommended for all bought-in Vines before planting them.

HORTICULTURE IN THE CAUCASUS.—Some four or five years ago someone drew attention here to the fact that the Department of Domains for the Caucasus had determined to plant an extensive tract of land in the vicinity of Batoum, on the

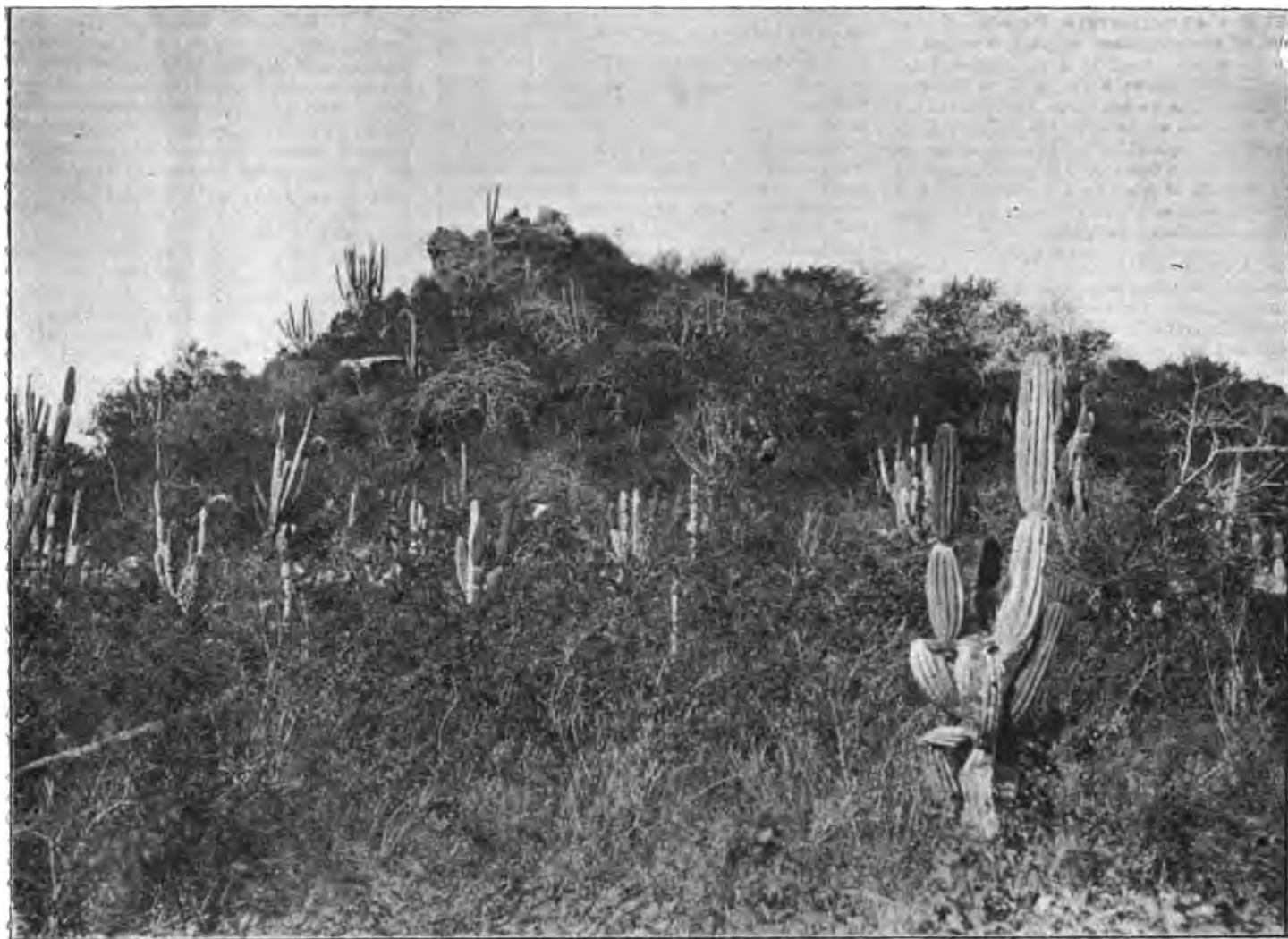


FIG. 61.—A VIEW IN THE GALAPAGOS ISLANDS, IN WHICH A SPECIES OF *CEREUS* IS PROMINENT AMONG BUSHY COMPOSITÆ, ETC. (SEE P. 177.)

of the Plants Exhibited," will be given by the Rev. Prof. G. HENSLow, M.A., at 3 o'clock.

— Some of our correspondents who attend the various Committees of the above Society, notwithstanding they live in the Midland Counties, ask how it will be possible for them to come to London, cross the City, proceed some 20 or 30 miles into a southern county to a station 2 miles from the proposed garden, and return the same day? We cannot answer the question, as we have no authentic information as to the proposed site, nor as to its distance from any station.

HORTICULTURAL CLUB.—The usual monthly dinner and *conversazione* took place on Tuesday, the 13th inst., when the chair was occupied by Rev. W. WILKS, and amongst those present were Messrs. Gofton, H. Salmond, G. Bunyard, A. Rivers,

HÆMANTHUS "KING ALBERT."—This is a hybrid from *H. puniceus* by *H. Katherine*, raised by Herr JOHANNES NICOLAI, of Coswig, near Dresden. The coloured illustration in the March number of the *Garten Flora* shows a fine head of scarlet flowers, and the plant is much more robust than either of its parents. A minute description of the plant is given by Dr. WITTMACK.

DISINFECTING VINE-CUTTINGS, ETC., AGAINST THE PHYLLOXERA.—Recent experiments have been carried out in France, according to the *Revue Horticole*, for the destruction of the Phylloxera insect and its eggs by placing the Vine-shoots intended for propagation purposes in water having a temperature of 40° to 50° Centigrade (104° to 122° F.). It has been found that the Vine-shoots can be kept for ten minutes in water at that tem-

perature, and in water at a temperature of 53° Cent., for five minutes' duration, without being injured, although it is quite sufficient to kill both insects and eggs. The adoption of this practical and simple method is also recommended for all bought-in Vines before planting them.

eastern side of the Black Sea, with such kinds of Tea as might be considered suitable for the district, and to have the work done by experts brought from the place of origin. So successful has the experiment proved that to-day the reports sent to the Department are all that could be desired. It had also been determined by the same Department to try the cultivation in the province of Tiflis, of Roses brought from Bulgaria. The promise of this year's crop is stated to be all that could be desired; the production of last year's crop in oil-of-roses was larger and of greater value commercially than that obtained in Bulgaria—the output of rose-water being also found to pay. The plans of the Department would thus appear to have been thoroughly matured, and the cultures removed from the domain of speculation to that of absolute certainty.

APPLES FROM AUSTRALIA, ETC.—Messrs. ANDERSON & Co., of the Orient R.M.S. Company, have received a telegram to the effect that the *Ophir* (due to arrive on April 14) will bring 16,500 boxes of Apples; the two to follow (*Britannia* and *Salamis*) will bring—the former 9600, and the latter 12,000 boxes.

HYBRIDISM IN CITRUS.—The seeds of Citrus often contain more than one embryo plant. Lately Mr. WEBBER has shown that in hybrid plants of Citrus only one of the embryos shows any trace of the pollen-parent, the true hybrid being derived from the egg-cell, and all the others by adventitious embryos produced from the nucellar tissue of the ovule.

THE BI-CENTENARY EXHIBITION OF THE SWEET PEA AT THE CRYSTAL PALACE.—On the occasion of this exhibition, which is arranged to take place on July 20 and 21 of the current year, Messrs. JAMES CARTER & Co., of High Holborn, London, intend, as we learn from a schedule of the show now before us, to offer the "Carter Commemorative Champion Cup" to the most meritorious collection of Sweet Peas staged in any of the classes in the schedule of prizes open to professional gardeners and amateur growers only, or in any non-competing miscellaneous exhibit.

THE QUEEN'S SHAMROCK.—On St. Patrick's Day, H. M. The Queen wore a plant of Shamrock, presumably *Trifolium minus*, obtained for her from St. Patrick's grave. The Queen subsequently directed that this particular root should be planted in the Royal Gardens, Frogmore, an instruction no doubt given because of the origin of this plant, as Shamrock is plentiful at Frogmore, as in most other places. It is a thrifty plant that flourishes in the poorest of soil. The Queen was pleased also to accept parcels of Shamrock from Mr. W. BAYLOR HARTLAND, Seedsman, Cork, and the acceptance has been notified to Mr. HARTLAND by her private secretary. From the same gentleman, the Secretary of State for War has accepted 1,000 packets of seed of the plant, which the Secretary states will be despatched to South Africa, and distributed among the Irish regiments.

COMING HORTICULTURAL SHOWS.—We have received the following schedules of exhibitions to be held during the present year:—The CAMBRIDGE-SHIRE HORTICULTURAL SOCIETY will hold a summer exhibition on June 12; and a Chrysanthemum, fruit, and vegetable show on November 7 and 8.—The KENT COUNTY CHRYSANTHEMUM AND HORTICULTURAL SOCIETY will hold their thirteenth annual exhibition in the Rink, Blackheath, on November 1 and 2.—The BOROUGH OF CROYDON CHRYSANTHEMUM SHOW is to take place as early as October 30 and 31, in the Public Hall, George Street.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held in the Lecture Hall of the Institution, on Monday, March 26, 1900, when a paper will be read by Mr. J. H. SABIN (Professional Associate), entitled "The Incidence of Imperial and Local Taxation on Rateable Property." The chair will be taken at 8 o'clock.

COUNTRY MEETING AT LEEDS.—It has been decided, on the invitation of the Yorkshire Provincial Committee, to hold the next country meeting at Leeds, on April 25 and 26. The first day will be devoted to papers and discussion, with a dinner in the evening; the second day to excursions to various places.

—Members who are graduates of any of the recognised universities of the United Kingdom are requested to intimate the fact to the secretary of the Institution, in order that the same may be indicated in the next issue of the List of Members.

HAMPSTEAD HEATH.—This well-known playground of Londoners has recently had one more charm added to it on the Golder's Hill estate, formerly the property of the late Sir SPENCER WELLS. This lovely spot exceeds 30 acres in

extent, and was secured to the public for some £36,000. To achieve the happy result has occupied the efforts of a committee originally organised by the late Mr. ERNEST HART, and the thanks of the community are due to those who have striven in and out of season to secure so fine an addition to the area of the Heath. The estate is now vested in the London County Council, and becomes for ever the property of the metropolis.

DURING THE SIEGE OF KIMBERLEY, it is reported that Mr. RHODES made a vegetable garden of some 30 acres, in his model village of Kenilworth. In such a climate as that of South Africa, a garden of this size would, if rainfall were sufficient at the time, produce an enormous amount of green food, and in making the garden a large number of men were enabled to earn sufficient money to maintain an existence.

THE NEW "CODE" FOR RURAL EDUCATION.—We have so many times urged the importance of differentiating between town and country in matters educational, that we have every reason to be pleased at the changes that the "Code" just brought out by the Education Department renders possible. Henceforth the course of instruction to be given in all elementary schools is to be suitable to the circumstances of the children and the neighbourhood. This means, of course, that in rural districts a knowledge of Nature bearing upon the culture of plants and the raising of stock will be imparted. Except in particular cases, the teacher will not be tempted to teach those special subjects which will bring him in extra grants in the easiest way. The grant will be one technically called "a block grant," made upon the efficiency of the school generally, whatever the subjects taught. Lessons on "common things," which in the country obviously will largely be "object-lessons from Nature," are to be given in the higher and lower standards alike, and a new course of household management has been devised for girls. Among the subjects on which special grants may still be obtained are manual instruction and gardening, and the school-garden may even yet become universal, in spite of the *Schoolmaster's* sneers at the Agricultural Education Committee, and the latter, knowing full well that all its wishes cannot be fulfilled at once, "hails with the greatest satisfaction the provisions of the new day-school Code," which we might add are due in a great measure to the energy displayed in the formation and work of that still youthful body.

THE WEATHER IN IRELAND.—The weather during March has been much better than that of February. There has been little rain, but an occasional keen wind. On the 17th and 18th there was snow, but it soon disappeared. The season will probably be a late one, as the principal field operations have only been commenced in earnest this month, and the planting of Potatoes is scarcely finished.

PUBLICATIONS RECEIVED.—*Lectures on Some of the Physical Properties of Soil*, by Robert Warrington, M.A., F.R.S. (Oxford, Clarendon Press), 1900. This book will be reviewed in our columns later on.—*Cassell's Illustrated History of the Boer War*, No. 1 (Cassell & Co., Ltd., London, Paris, New York, and Melbourne). Just such a record of adventures as boys, and some of their elders also, will appreciate.—*Report of the Institute W. Schimmelfeng*, January, 1900. The Institute was founded "to further and protect the just interests of the business community throughout the civilised world."—*From West Virginia Agricultural Station, Morgantown, W. Va.*, Bulletin No. 59, June, 1899.—*Whole Corn Compared with Corn-meal for Fattening Hogs*, by J. H. Stewart and Horace Attwood; No. 60, June, 1899.—*Poultry Experiments*, by J. H. Stewart and Horace Attwood; No. 61, September, 1899.—*Sheep-feeding Experiments*, by J. H. Stewart and Horace Attwood; No. 62, October, 1899.—*Study of the Effect of Incandescent Gaslight on Plant-growth*, by L. C. Corbett.—*From the U.S. Department of Agricultural Division of Soils*, Bulletin, No. 16.—*Catalogue of the First 4000 Samples in the Soil Collection of the Division of Soils*, by Milton Whitney; and, *Division of Entomology*, Bulletin, No. 22.—*Some Miscellaneous Results of the Work of the Division of Entomology*, IV, prepared under the direction of L. O. Howard.—*Annual Report of the Department of Agriculture, Queensland*, for the year 1898-99.—*Le Mois Scientifique*, Mars, 1900 (Librairie, J. B. Ballière et Fils, 19, Rue Hauteville, Paris).—*Nature Notes*, March.

THE VERBENA REVIVAL.

THERE is some promise of the Verbena regaining the popularity it has lost during the past fifteen years. Not that it is my intention to convey the impression that it is not to be found in gardens, but it has greatly declined in popularity as a florist's flower, and good named varieties are by no means plentiful. Happily, it some years ago found a congenial home in the nurseries of Messrs. Keynes & Co., of Salisbury, who continued to grow a collection of varieties, and among these are some of the varieties which were popular nearly twenty years ago, such as *Boule de Neige*, white; *Crimson King*, *Eclipse*, deep scarlet, an excellent bedder; *Lustrous*, intense scarlet, also an excellent bedder; *Nemesis*, deep pink; the old *Purple King*, and *Zulu*, claret. Add to these *Allemania*, clear pink; *Lottie*, a deep violet self; *Lord Brooke*, scarlet; *Lovely Blue*, pale blue; *Rising Sun*, bright scarlet; and *Royalty*, deep crimson; and there can be had a collection that in the hands of a skilful cross-fertiliser, could be made to originate some very fine varieties. After all, the propagated plants of named varieties are much better adapted for bedding than seedlings, however good, because they do not grow so rank, and are highly floriferous, in addition to the certainty of possessing fine quality of bloom.

The reputed progenitor of our cultivated Verbenas was *V. melindres*, said to have been introduced in 1828. I do not claim *V. melindres* as a species, it was probably but a varietal form of some species? Ten years after the leading varieties were *Tweediana*, *ericoides*, *Lamberti*, *rugosa*, and others. It was probably with some such material as this that the late Dr. Sankey sought to improve some forty years ago, when he was living at Hanwell. Later, Robinson of Pimlico gave us his *Defiance*, a popular bedder, with scarlet-coloured flowers; George Smith of Hornsey was a prominent raiser, and others up and down the country. *The Florist* for January, 1849, gave a coloured illustration of three leading varieties, showing the pips were quite small in size, with ragged or notched edges. In 1853, appeared Mrs. Woodroffe, raised by Mr. Woodroffe, of the Harrow Road, which was also very popular for many years. The greatest advance was made in 1854, when Mr. Edmonds, gardener to the Dowager Lady Lacon, Great Ormsby, produced a number of varieties which were distributed by Mr. C. Turner, from Slough. These showed a remarkable advance both in the size of the pip and truss, and there was a great demand for them.

It was with such material that Mr. C. J. Perry, of Birmingham, commenced his work of improvement. He grew his plants in pots under glass, and succeeded in producing varieties of large size and great merit; but the effect of cultivation under glass and in artificial warmth was to weaken the constitution of the plants—and not a few of Mr. Perry's varieties proved failures as bedders in consequence.

About this time Mr. Henry Eckford, then at Coleshall Gardens, who had been an enterprising florist for some years, took the Verbena in hand, and recognising the fact that the constitution of the more select varieties needed strengthening, he got together a collection of a few of the leading varieties then cultivated, and cross-fertilised them, and obtained seed. This he would sow about the middle or end of March in any convenient large-sized pots, using a rich compost, covering the seeds to the depth of about a quarter of an inch, and placing the pots in a temperature of from 60° to 70°, and keeping the surface moist; and taking care the surface was not allowed to become dry, he would get a rare growth of seedlings, which in about three weeks or a month from the time of sowing, he would prick off about 2 inches apart in pans or boxes, keep them close for two or three weeks till they became active, then harden them off in a cold frame preparatory to planting them out in the open to flower. Care is necessary to keep the young plants while in heat from being attacked by red-spider, as it is difficult

to get rid of it afterwards. Mr. Eckford regained constitutional vigour for the Verbena by planting out the seedlings to flower by the beginning of May, and keeping the ground about them free of weeds; and when they bloomed, all worthless seedlings were at once pulled up, and only the very best suffered to produce seeds, all being carefully

the work, and once more raising the standard of quality of the Verbena.

The main value of the Verbena lies in its adaptability for bedding purposes in summer. When planted out in rich soil the plants soon carpet the surface with a dense growth, and bloom profusely up to the autumn.

mondi has now largely taken the place of the Verbena on the exhibition-table, but, as stated at the outset, there is reason to think the Verbena may yet regain its old position in the show tent. R. D.

APPLE LORD SUFFIELD.

THE illustration which is given on this page is reproduced from a photograph taken in the garden of Hinks Baker, Esq., The Cedars, Handsworth Wood Road, Birmingham, therefore, to a certain degree an urban district. The fruits are very fine examples of this favourite early variety of Codlin, weighing, as Mr. Baker informed us, 12 to 13 ozs. apiece, the one-foot rule across the fruits giving an even better idea of the size than do the Crabs upon the same dish. He told us further that "the trees are standards, and are pruned well back every winter on the spur system, have no other particular care or manuring, and always during the last ten or twelve years they have borne good crops. The soil is poor, being light and sandy, with a very gravelly subsoil, and about three miles out of Birmingham. I find the soft-fleshed Apples do best, though all blossom more or less freely."

BOOK NOTICE.

LES PLANTES DE SERRE, ETC. Par G. Bellair and L. Saint Leger. (Paris: Octave Doin, 8, Place de l'Odéon, 1900). 8vo, pp. 1672, figs. 627.

As may be judged from the particulars above given, this is a large volume. Its object is to furnish descriptions of stove and greenhouse plants, with their synonymy, indications of their native habitat, date of introduction, &c. The cultural proceedings and methods of propagation appropriate to each plant or each group of plants are explained. The purpose to which each plant may be devoted is also indicated. The arrangement is alphabetical, and certain families, such as Ferns, Orchids, Bromeliads, Palms, &c., are treated separately. At the end of the volume the genera are arranged in their natural orders, so that if, as frequently happens, one forgets the name, but knows the family to which a plant belongs, a glance at the list of genera of the particular family will often suffice to recall the desired name.

In the introductory pages the construction of plant-houses, heating apparatus, the making of composts, and general cultural principles are dealt with. The diseases of plants also receive some attention—in fact, the work is encyclopaedic in its character, and the assured reputation of its compilers affords a guarantee that the work is carefully and accurately prepared. To give an illustration of the comprehensiveness of the book, we may mention that no fewer than sixty species of *Begonia* are described, independently of very numerous hybrids and of several synonyms; 113 varieties of *Caladium* are similarly enumerated, and briefly described. It seems ungracious to ask for more, but at least we may say that the work would have been more complete if reference had been made to the works in which the species are described, and specially to those in which they are figured. It is obviously a book on which much labour and judgment have been expended, with proportionate benefit to the reader. It is a book which should be in all reference libraries.

THE WEATHER IN WEST HERTS.

DURING the past week the weather has been at times quite wintery. It remained warm until the 15th, since which time low temperatures have prevailed; and on the coldest night the exposed thermometer registered 15° of frost. At 2 feet deep, the soil is at the present time at a seasonable temperature, but at 1 foot deep it is about 1° colder than the average. Snow fell on three days,



FIG. 62.—FINE FRUITS OF LORD SUFFIELD APPLES, GROWN AT "THE CEDARS," NEAR BIRMINGHAM.

cross-fertilised. In this way Mr. Eckford raised year by year batches of plants which were named and distributed by Messrs. Keynes & Co., of Salisbury. Later in time, Mr. W. H. Stacey, of Dunmow [and Mr. Wills, who raised some double varieties], brought out some very fine varieties, which were, on a few occasions, exhibited at the meetings of the Royal Horticultural Society; but there is need for some enthusiast again taking up

The Verbena was once a popular exhibition flower, and when a stand of twenty-four of the leading varieties raised by Perry or Eckford were put up by these raisers, five trusses in a bunch, they were charming to look upon. For years, stands of cut Verbenas were a common feature in schedules of prizes, and especially in the West of England, and they were continued until within a few years of the present time. The Phlox Drum-

and on the evening of the 18th, the ground was covered to the mean depth of 1½ in. This fall, however, quickly melted, and in twenty-four hours nearly the whole of the snow had disappeared. The most noteworthy feature as regards the wind lately has been the coldness of the currents from S.S.E. There has been again but little sunshine during the week, except on the 17th, when the sun shone brightly for nearly nine hours. *E. M., Berkhamsted, March 20.*



HOME CORRESPONDENCE.

IRIS STENOPHYLLA (see fig. 55, p. 171, ante).—It was admitted by all who saw this flower when shown by Messrs. Wallace, of Colchester, at the Drill Hall, on February 2 last, that it was among the most beautiful yet introduced. Apart from the beauty to which you rightly allude in your report of the meeting involved, there is much refinement to be noted in the flowers; and the breadth, vigour, and boldness of the flower are not the least valued of its features. It is a perfectly unique species; no other bulbous Iris that I know of can compare with it excepting in stature, the exception being *I. alata*. In the last-named species there is a rugged disproportion of the parts of the flower that often render it more singular than beautiful. In the newcomer, on the contrary, we have a well-balanced flower of intrinsic merit which appeals to all lovers of hardy flowers. It is something greatly in favour of a new species such as this that at its first appearance at the Drill Hall it secures a First-class Certificate, and that in an unanimous vote; and while we do not forget the richness of *I. reticulata* at its best, or the pleasing combination of *I. histrio* and *I. histrioides*, the remarkable *I. persica*, or the rich golden of the profuse flowering *I. orchoides*, not to mention others rare and good, there will be found abundant space in our gardens for this last newcomer. *E. Jenkins, Hampton Wick.*

HAIRINESS OF PLANTS.—Mr. Hemaley calls attention, in a recent number of the *Gardeners' Chronicle*, to great differences in this feature between various species growing together, and even on different leaves on the same plant. The general correlations between hairiness and drought and a glabrous condition and moisture are obvious, though many hairless plants exist in dry deserts; but in all cases some other provision is made against desiccation. As a rule, it is by a felt-like covering of stellate, or cotton-like hairs, which gives a grey appearance instead of a green colour to so many desert plants. When succulent, as *Zygophyllum*, &c., then a thick cuticle covers the water-storage tissues. Cactaceæ, Crassulaceæ, Aloinæ, &c., supply abundance of illustrations of hairless plants growing in hot and arid conditions. With regard to the various characters of the hairs of different desert plants, as I have fully described them elsewhere, it need not be repeated here.* I have also given several instances of plants naturally hairy, which become glabrous when grown elsewhere.† Common roadside plants are usually hairy, but if they grow by water-side, the hairiness more or less entirely disappears, as in *Ranunculus repens*, &c. The same plant may bear almost hairless leaves at one time, and densely hairy ones at a later period, as in *Lavender*. In the first stage, the leaves will grow to 2½ inches in length, be perfectly flat and almost devoid of the stellate hairs characteristic of the later foliage. The leaves of this latter are shorter, and have the margin rolled back, a feature characteristic of plants frequenting dry localities. The interpretation is obvious; that when the first kind was developed,

the plant had more water at its disposal. Similar differences exist between plants growing in the irrigated Nile Valley, and the same species when occurring in the dry wadis of the deserts round Cairo. An analogous feature is seen in the common reed *Phragmites communis*. This grows abundantly by the hill on Rhoda Island, by Cairo. It there bears ordinary foliage, but its rhizomes spread over a large piece of waste ground which rarely gets any water. It there forms the so-called variety *Isarica*, characterised by its short spiny leaves. But it may be often seen to bear both kinds of foliage on the same stem, clearly the result of differences in the water supply when the leaves are developed. Mr. Hemaley mentions *Matthiola incana* and *M. sinuata*, both of these are normally covered with stellate hairs; so if either may be found without such a covering, the difference is that such hairless individuals happened to be in a more favoured and wet spot. *George Henslow.*

FUNGUS ON GOLD-FISH.—I have kept an aquarium for many years containing gold and other fish, but sooner or later have lost them, principally from fungus. As sulphur is a cure for fungi of many kinds, it struck me that in this case it also might prove effectual, so I took two fishes—a gold-fish with a patch of fungoid growth on the side, and a roach with a patch an inch long between head and dorsal fin—dusted both with dry flowers of sulphur, and returned them to the aquarium, covering the surface of the water also with sulphur. This being insoluble, remained some weeks, and each time the fish came to the surface a portion fell, so that they were in a shower of it. Two healthy minnows have been with the affected ones, and at this time, eight weeks since the application, all are perfectly healthy. The fungus on the gold-fish evidently grew on a spot from which a scale had been lost. *Thos. Taylor, Bocking, Braintree.*

APPLES, BELLE DE PONTOISE AND STRIPED BEEFING.—Amongst late keeping Apples, of which we have a good number, there is none which, this season up to the present time (the first week in March), has kept better than the two whose names head this note. They are as sound and firm as Hornshead Pearmain, or Wellington, and have kept much better than either Lane's Prince Albert, or Bramley's Seedling, neither of which has been wholly satisfactory in the matter of keeping. With reference to the keeping of Apples, it is more than probable that some varieties are at times undeservedly condemned, their keeping ability depending largely upon the conditions of the weather at the time of gathering, the kind of fruit-room into which the fruit is put, &c. For instance, the finest developed fruits are not, as a rule, the best keepers. We grow Wellington, large, handsome, and juicy, upon bushes in well prepared good soil; we also grow the same variety considerably smaller, and otherwise inferior in appearance, upon old standards in a grassed orchard. The latter are, however, the best keepers. Then again, some years ago, we had fine Blenheim's, together with some other kinds, burst their coats in December, which, rightly or wrongly, I attributed to the weather, because after the fruit was stored dry weather prevailed up to December, when a wet time set in, hence the mischievous result. Belle de Pontoise was, I believe, distributed by Messrs. Bunyard & Co., of Maidstone, and although a comparatively new variety, it is becoming deservedly well known. Its fruit is very large, solid, briskly flavoured, and cooks well. It is of globular shape and high colour, and first-rate as an exhibition variety. The tree is a robust grower, making a standard better than a pyramid or a bush. I have not, however, had any experience with it as a standard. As a bush we find it an early and an exceptionally abundant cropper, but a somewhat awkward grower. This is, however, of little moment, for Apple-trees are grown for their fruits. It is an open question if Striped Beefing is as much grown as it might profitably be. A grower for market, who has many of the leading varieties, lately saw it here, and was struck with its fine size and beautiful appearance. I was unfortunately not qualified by experience to give him an opinion about it as a market kind. As a bush, we find it late in coming into a good bearing state. Our trees of it are six years planted, and the present is the first season that they have produced a really good show of fruits. Mr. Watkins of Withington, Hereford, who grows it in quantity, considers it

one of the best late-keeping culinary varieties, although he says, in common with some other good kinds, it is not an early bearer. He recommends it to be grown as a standard. His trees of it of this description have been planted a quarter of a century, and since the first five years they have borne regularly good crops of large handsome fruit, which command good prices. There is no doubt that, owing to its robust character of growth, it is better adapted for growing as a standard than a bush. Late Apples of good quality are none too plentiful, and the above two are undoubtedly deserving of notice. *Thos. Coomber.* [We consider there are no better, more prolific, or hardier long-keeping Apples, than the Norfolk and Striped Beefings, and none that are so thoroughly adapted for the climate of any part of these islands. Ed.]

HYBRIDS TRUE FROM SEED.—In the brief summary given in the *Gardeners' Chronicle*, p. 175, of Mr. Lynch's lecture before the Royal Horticultural Society on "Evolution of Plants," he is reported to have shown, by numerous attested illustrations, that "garden hybrids are often quite equivalent to new species, and behave altogether as the so-called pure species do." I have paid in the last twenty years much attention to this subject, and have studied thirty or forty spontaneous hybrids between distinct species which have come in my garden. A considerable proportion of these have been fertile, and I have raised seed from them, but I have not yet met with a single instance in which the seedlings were true to the hybrid parent. In some instances, especially in *Dianthus* and *Aquilegia*, they depart further from the specific types, but in other cases they revert absolutely, partly to one parent and partly to the other. This is most conspicuous in *Helianthus* and *Narcissus*. It is curious that the only exception I have yet found is in some seed sent to me two years ago by Mr. Lynch—*Verbascum cupreum*. This plant I have generally believed to be *V. phoeniceum* × *V. nigrum*, and though it comes spontaneously in my garden year after year, I have never found a fertile seed on it, or on any other hybrid *Verbascum*. But Mr. Lynch's seed was a mixed lot, some producing *Celsia cretica*, as I informed him when the plants flowered. I read all that I could find bearing on this subject in the report of the late Hybrid Conference, in which I found abundance of well-earned glorification of those who have developed single species of garden flowers, such as Sweet Peas; but I searched in vain for anything edifying concerning the origin of new species in hybrids properly so-called. One speaker enlarged upon the reproduction from seed of *Berberis stenophylla*, which *Index Kewensis* gives as a species, not a hybrid. *C. Wolley Dod, Edge Hall, Malpas.* [The *B. stenophylla* of Hance may not be the same as the *B. stenophylla* ×, hort., of whose hybrid origin we have little doubt. Ed.]

PARSNIPS.—After observing the fine examples of Tender-and-True Parsnip which Mr. E. Beckett placed before the Fruit Committee at a recent Drill Hall meeting, that body expressed a desire that the variety be grown at Chiswick this year, to see how far it is distinct from the Hollow-crown, Student, or other named varieties. The soil at Chiswick is hardly adapted to do Parsnips well, but it is hoped all the same if seed be obtained from three or four trustworthy sources, under the names as advertised, and sown before the close of the month that a satisfactory test as to diversity or otherwise may be obtained. Inclusive of the Turnip-rooted variety, one little grown, seedsmen generally catalogue six under diverse names. It is very doubtful whether there are so many. M. Vilmorin, in his fine book *The Vegetable Garden*, is content to give four, the Hollow-crown being esteemed much the best. But M. Vilmorin classes the Student with the Hollow-crown, which is diverse from my recollection of it when first put into commerce by Messrs. Sutton & Sons, many years ago, as the crown so far from being hollow, was practically even or almost tapering. I have now and then found roots of the variety shown having similar crowns, differing materially from the Hollow-crown. At the same Drill Hall meeting, the Rev. G. Henslow, in his afternoon address handling one of Mr. Beckett's handsome roots, referred to the variety as the Student. He also described the origin of that variety through the agency of Professor Buckman, in gradually evolving it from out of the wild Parsnip. I well remember when first the Student was grown by me and

* *Origin of Plant Structures*, p. 64.

† *Op. cit.*, p. 65.

cooked, how superior the texture of the flesh was to that of the variety then in common cultivation, but it is easy to understand that the hollow crown form has by careful selection been greatly improved since then. Tender and True is a hollow crown form, but that feature does not seem to be so prominent as in the case with the old stock. The flesh seems also to be whiter. Mr. Beckett holds that it is distinct, and regretted on the 26th ult. that when showing roots of Tender and True he had not brought roots of the hollow crown to show the distinction. Mr. Fyfe, of Locking Gardens, was one of the first exhibitors of the variety, and his samples I recollect were not only very handsome, but were marked by purity of colour. The roots were shown at the Drill Hall, in spite of the fact that the points of the tap-roots had gone down from 30 to 36 inches easy enough under the Aldenham system of deep trenching, which is, by-the-by, but the same method as is adopted in all good gardens, were yet marked by breadth of shoulder and perfection of form, with ample soft marrowy food for about 12 inches. There was in them an entire voidance of hard woody core, which is so common in roots that are thick as broom-sticks, 18 inches deep, and seem to be as much beloved of judges as detested by consumers. Parsnips are, in ordinary cookery, too much under a cloud. When properly cooked, if scraped first only, then boiled whole slowly, so that the water has disappeared when the roots are done, there are few of tap-roots more delicious eating just now; yet when cooked in the common way by peeling them, cutting them into quarters, boiling them to a watery pulp, then sending them to table, they are rather flavourless—so much depends on the style in which this vegetable is sent to table. A. D.

THE "YELLOW" SNOWDROPS.—Those who have not seen them have rather a prejudice against the few Snowdrops whose flowers do not possess the normal colouring of white and green, and, for the latter, substitute yellow, which adds so much to their beauty. The charm of these Snowdrops, with their pure white segments so prettily touched with soft yellow, is very great. When the ovary is also of the same pretty hue, the flower is all the more beautiful. Unfortunately these yellow Snowdrops—for such we must call them, though the name is liable to mislead others by making them think the segments are yellow also—are not plentiful. There are few varieties known, and there are but few bulbs of each. I believe there are in cultivation only some three varieties, although at any time one might hear of their being added to. All three are varieties of *Galanthus nivalis*. The first to be found was a delicate little flower, which has been called *G. lutescens*, and was discovered by Mr. Sanders, of Cambridge, in a garden in Northumberland, somewhere about 1876. It is slender in growth, and not a very good doer, though very pleasing with the nice colouring of its flower-stalks, ovaries, and the markings on the segments. Unfortunately I am no longer possessed of this little flower, which fell a prey to the Snowdrop-fungus before it had increased sufficiently to allow of division; but some day it may, perhaps, come my way again. The more robust variety, known as *G. flavescens*, which was found by Mr. W. B. Boyd of Faldonside, Melrose, several years afterwards, also in Northumberland, is a better grower, and more vigorous in every respect. It is even brighter in its colouring, and is an extremely pretty flower. I am told that there is a fair stock of this Snowdrop in the garden in which it was found. It flowers regularly here. The greatest rarity of the three is a double form, of which I first heard in 1898, from Mr. W. E. Gumbleton, who had heard of it that year. This comes from a garden near Crewe, and is a counterpart of the common double-flowered Snowdrop, save that the markings, ovary, and stalks are yellow, though hardly so bright as in *G. flavescens*. Two of those sent came with the ordinary green colouring, but others have kept their yellow hue both last year and this. Occasionally one has seen Snowdrops which were yellow in their markings; but these generally return to the normal colouring, unlike the varieties mentioned in this note. These yellow Snowdrops do not come true from seed; it might be possible, however, by perseverance and much patience to fix the colouring in a strain of Snowdrops. S. Arnott, Carsethorn-by-Dumfries, N.B.

—A letter I have just received from a Snowdrop-loving friend informs me of still another "yellow" Snowdrop. It is rather remarkable

that this also should have been found in Northumberland, where *G. lutescens* and *G. flavescens* were also discovered. I have no further information about it, except that it was found by the Hon. Miss Grey. My correspondent is, however, satisfied that this variety is distinct, and his knowledge of the Snowdrop is unquestionable. S. Arnott. [Will Mr. Arnott say in what part of Northumberland? Ed.]

THE USE OF SOOT AGAINST WIREWORMS.—Soils that are badly infested with wireworms, both the false and the true, should be dressed with fresh soot before any crop of Turnips, Brassicas, Onions, Tomatos, &c., is sown or planted. The amount of soot used should be just sufficient to colour the surface immediately before the seed-drills for planting are made. A small quantity being deposited in the drills before planting Potatos generally results in the production of a good crop of tubers free from blemish. Before planting Cabbages, Cauliflowers, &c., let the roots of these plants be dipped into a "puddle" made of the staple, and two handfuls of soot made into a thick paste with water. Good full rows of Parsley, and entire rows of Tomato plants will result if the same measures be taken. H. W. Ward.

STRAWBERRIES ROYAL SOVEREIGN AND LA GROSSE SUCRÉE.—For several years past these two varieties have furnished almost entirely the supply of forced Strawberries at Frogmore. Royal Sovereign is the better of the two for forcing very early, the inflorescence containing a larger number of flowers, and these invariably having plenty of pollen. The scape itself is also thrown well away from the crown of leaves, thus enabling the flowers to derive full benefit from the sun and air. Possessing these several advantages, Royal Sovereign "sets" well under adverse conditions. La Grosse Sucrée at a very early part of the season is not so satisfactory as the above variety, because its flowers are then but small, deficient in pollen, and remain partially hidden amongst the foliage—which, however, is not nearly so dense and luxuriant as that of Royal Sovereign. If grown by the side of this one a little later, its flowers may be cross-fertilised with pollen from Royal Sovereign, and satisfactory results be thus obtained. A far greater proportion of the plants of Royal Sovereign go blind than is the case with La Grosse Sucrée, and the crowns of the latter remain firm, and do not split up in the manner common to Royal Sovereign. The ripe fruits of La Grosse Sucrée are of a darker and more pleasing colour, and in my opinion it is a better-flavoured variety than Royal Sovereign. It will thus be seen that both varieties have certain bad points, but by cultivating the two together, some of them may be eliminated or ameliorated. H. H. T.

THE HEPATICA.—Some years ago I acquired a plant of *H. angulosa*, and after a while I found seedlings of it, which, to my surprise, in time produced flowers of white, pink, and several shades of blue, some of the flowers varying in size. Some of the plants now are a large size, with abundance of bloom, and the young plants plentiful. I saw the three colours in a space of about 3 inches, flowering for the first time, wondering if it was a common thing for *H. angulosa* to produce flowers of the colours named. J. C.

SWEET-SCENTED CYCLAMEN LATIFOLIUM.—I have been working for some years to obtain sweet-scented varieties, and have this season obtained four plants (out of about 1200), with a powerful scent, three of them having the perfume of the hardy *C. europæum*, the fourth being strongly Rose-scented. The plants are of the Giant Strain, and are otherwise identical. I have used the hardy *C. europæum* as the pollen parent in hybridising. W. Clifford, Barton-on-Humber.

Obituary.

MRS. A. L. LAWRENSON.—The sudden and unexpected death of this lady-amateur gardener and writer, came as a shock to all who knew her—and they were many—in the world of flowers. Years ago she contributed notes and papers on floriculture to these pages (*Gardeners' Chronicle*). She died on Wednesday, 14th inst., after a short attack of acute pneumonia. By many she was better known by her *nom de plume* of "St. Brigid,"

than by her own name. Her seedling strain of "St. Brigid" Anemones, and her pure white, green-stemmed Christmas Rose, are to-day well known and cultivated in many gardens. She also reared two or three very early red or fiery-chaliced varieties of *Narcissus incomparabilis*, of which "Lucifer," sent out last year, is an example. Like the late Miss F. J. Hope, of Wardie Lodge, "St. Brigid" grew patches of golden and crimson Wallflowers, Polyanthus, and sweet Herbs and long lasting leafage for the poorer people in the dusty town, or for those close pent in city institutions; and she was peculiarly anxious that they should be grown as well as possible.

Now and then Mrs. Lawrenson gave lectures, and illustrated talks about gardening and flowers, &c. One of the latest of these taking place only a few days before her lamented death.

She was always delighted to visit good gardens, than which few things gave her greater pleasure, except perhaps to receive visitors in her own. She was buried on St. Patrick's day, in the old burial-ground of St. Fintans (with its tiny Celtic oratory and Sacred Well), on the rocky headland of Howth, a place she dearly loved, and quite near to her former residence, where all her favourite flowers had thriven so well.

THOMAS BOYD.—The many friends of Mr. Thomas Boyd, the well-known and much-respected gardener to W. Forbes, Esq., of Callender Park, Stirlingshire, will be grieved to learn of his sudden decease at the age of fifty-five years, on Monday, March 19. Our friend and neighbour had not been quite well of late, but there was nothing to indicate that his end was near. As exhibitor or judge, Mr. Boyd was most courteous, and his unassuming manner rendered him very popular. He was a native of Hopetoun, near Edinburgh, and from early life had excellent opportunities of gaining a good experience in gardening. He soon became a successful exhibitor of fruits, and his large collections and finely-finished Grapes were very prominent at exhibitions. He attended all the international shows in England and Scotland, and returned with many of the best prizes in his possession. He won the Veitch Memorial Medal by showing excellent Muscat Hamburg, and captured cups and plate in competitions for fruit. For some years, while gardener to Sir W. Wallace, at Lochryan, Wigtou, Mr. Boyd gave a capital account of himself as an exhibitor, from there he came to Callender Park, where he has successfully laboured for twenty years, exhibiting much zeal and deep interest in the management of Mr. Forbes' fine gardens. Mr. Boyd has left a widow and large family to mourn his loss. M. Temple, Carron, Falkirk, N.B.

FORESTRY.

PARK CLUMPS.

(Continued from p. 102.)

SOME trees are able to get up with a straight stem and well-balanced crown, others are partially suppressed by taller neighbours, and lean out towards the most light, while cattle or deer browse upon or break off the heads of a tree here and there, and convert it into a pollard or scrubby bole. Raised in such a way, no two trees are exactly alike in height, shape or size, and we get an amount of variety which can never be approached in plantation-grown trees, or where trees are planted and thinned with careful regularity.

To trust entirely to this natural process in comparatively small or closely-grazed parks would be too risky and uncertain, but it can be imitated easily enough on small patches of enclosed ground, such as is now usually devoted to the ordinary clump. We can dispense with the brambles and similar rubbish of waste ground, but no objection can be raised to Thorns, Hollies, or other spinous shrubs which will eventually serve to protect the stems from deer or cattle after the fence is removed. Whatever forest

trees are planted should be put in irregular lines, thicker in some places than others, no set distance between the trees, and no nurseries. No thinning, and no pruning should be allowed, unless done with a skilful eye and hand, for we want nature and not science in park timber. For the planting, select the densest labourer at your command, give him minute instructions as to the way you do not want the work done, and then leave him alone. The result will probably be not far out, for this class of man invariably does the very opposite of what he is told, and does it well. If one of the yard's distance between his plants happens to be a pole, and the next six inches, so much the better, or if a few square yards of ground are left unplanted altogether it will do no harm. The less apparent design there is about the work, the better will be the final result. The Thorns, Hollies, and such like plants should be mixed in with the forest trees, separating some, surrounding others, but not planted round the outside of them like a hedge. If a few blanks occur through death, &c., bracken may be planted, as it is always an attractive feature in a park where it can be got to grow.

As soon as a sufficient number of trees are out of the reach of cattle, and their stems protected by the growth around them, let the fence be removed, and the animals will soon do the necessary amount of thinning amongst the weaker individuals; but horses should never be allowed access to trees upon which any value is placed.

As regards the species of tree selected for park clumps, nothing is more appropriate than the Oak, as much on account of its appearance as for its longevity. As single trees, few can beat the Elm, while the Beech is better suited to the more crowded parts of a park; but for small clumps and groups the Oak must be regarded as an indispensable factor in investing park scenery with that truly English character which is more easily imagined than described.

A typical English park furnishes a class of scenery which is probably unique in its way, and is certainly worth preserving in its true character, and free from the gimcrack "improvements" and hybrid styles of planting so frequently met with throughout the country now-a-days. Better a naked turf than species and methods of planting out of keeping with the scenery they disfigure instead of creating. *A. C. Forbes.*

TREES AND SHRUBS.

"A NEW EVERGREEN, ROSEDALE HYBRID."

In the *National Nurseryman* for February, published at Rochester, U.S.A., is a notice and illustration of a handsome-looking *Arbor-vitæ*. It originated at the Rosedale Nurseries, Washington, co. Texas (Messrs. Baker Brothers), and is said to be a "true hybrid, a cross between the Golden *Arbor-vitæ* and *Retinospora squarrosa*." If this be really its origin, the fact is curious as affording an illustration of a hybrid between a species of *Cupressus* (*Retinospora*) and a *Thuja*. No evidence is afforded of its asserted hybrid character, so that we must suspend judgment till it is forthcoming, and until we have had an opportunity of seeing the plant. It has the compact ovoid form of the *Arbor-vitæ*, while in texture and colour it resembles the *Retinospora*.

SPERMATOPHYTES.

This is supposed by some to be a hybrid between *S. betulifolia* and *S. callosa*; others think it originated from crossing *S. corymbosa* and *S. japonica*. The flowers are white, and borne in dense roundish heads. It is figured and described by M. André in a recent number of the *Revue Horticole*, but was originally introduced about 1866, by Mr. Cripps of Tunbridge Wells. S. Van Houttei is said to have originated as a cross between *S. trilobata* and *S. lanceolata*.

IRELAND.

FORESTRY IN IRELAND.

THE annual report of the Government just published shows a decline of forestry in Ireland, but contains some valuable statistics, showing the rates of decrease and increase in the acreage of woods. The report covers a period of fifty years, and comes down to 1899. In the year 1851 the total extent of forests covered an area of 304,906 acres, and this was increased gradually up to the year 1898, when the area devoted to woods was recorded to be 339,853. From this year up to 1899, there was a gradual decline, and in the latter year the total acreage was only 327,461. From this date the process of denudation has been quicker, and in 1898 the total acreage was 307,661, which shows a falling off in twenty years of 32,197 acres.

The Congested District Board have just taken measures to encourage forestry, and the area under trees for 1899 is said to be 308,495 acres. Their labours, however, are devoted to the west coast, where clearing has been most extensive. They are reforesting as quickly as possible, but unless some legal restraint is put on owners, the present rate of decrease will neutralise the labours of the Board.

The question of how far, and what places in Ireland require to be laid down to trees is one that should come under the notice of the new Board of Agriculture for Ireland. *A. O'Neill.*

THE APIARY.

Honey in Stock.—I would remind beekeepers who have a stock on hand of honey in the comb, to dispose of the same on the first opportunity that presents itself, more particularly those persons whose place does not adapt itself for keeping the sections from becoming candied and weeping, as in this state they are unsaleable. Should the sections be glazed ready for dispatch, care should be taken to examine every one, and if the honey has run or the paper is dirty, it will pay to place another paper over it, and so give it a clean appearance; and this is quickly done without disturbing the original paper or lace edging. Many shop-keepers now prefer the sections to be covered with white paper, which is brought down over the glass about half an inch.

Future Contracts.—Information has reached me from one of the largest railway companies that they have decided not to carry any honey in comb unless it is absolutely at owners' risk, and that they are contemplating the same thing so far as the goods traffic is concerned. This will, if it be carried out, make a very great difference to the seller, because he will have no chance of making up for breakages, and the purchaser would, of course, not do so, so that the loss would fall on the sender. This, and the advance in the prices of bee goods, should be borne in mind in taking contracts, and also in the manner of packing. It will no doubt make sellers very much more particular than they have been, for it is owing in a great measure to faults in packing, and the claims resulting from the loss of honey, that have caused the railway companies so much trouble.

Condition of Bees.—All stocks should now be carefully examined on the first fine day in order to ascertain the condition of the food supply, but do not interfere with or lift out any of the frames. Damaged sections and candy-cake should be afforded the bees, for much will depend just now on the bees being kept well supplied with food. In some parts of the country, it is just as well to feed the bees with a small quantity of syrup only, and not feed rapidly. A word as to weak stocks: it will be much better a little later in the season to unite two stocks of bees, and thus ensure good hives, rather than endeavour to feed up a weak one, and get no results at the end of the season. It often happens at this season that hives having aged queens gradually dwindle to a few bees, and these die out or join another hive.

Roofs.—The recent heavy rains and snow will have shown the careless bee-keeper that to keep the hives dry is the best policy, and that wet quilts should be replaced quickly with dry ones. *Expert.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

FEBRUARY 27.—Present: Dr. M. T. Masters, in the Chair; Mr. Michael, Mr. E. Im Thurn, Rev. W. Wilks, and Rev. G. Henslow, Hon. Sec.

The Lucombe Oak.—Specimens of foliage and acorns were received from Rev. J. H. Ward, of Silvertown Rectory, Exeter, from a tree growing in the churchyard, requesting information as to their identity. Dr. Masters has supplied the following details:—"I believe the leaf and acorns exhibited to be those of the Lucombe Oak, or one of its descendants. The Lucombe Oak was a hybrid between the Turkey Oak (*Q. cerris*) and the Cork Oak (*Q. Suber*). The leaves are all but evergreen; indeed, in some of the varieties, quite so. As is the case generally with hybrids, the descendants from the first cross vary extremely, consequently there are many forms and varieties of the Lucombe Oak in existence. As the specimens came from Exeter there is additional ground for presuming it to be descended from the Lucombe, as the original tree was raised in the nursery of Lucombe, Pince & Co., of Exeter. The Fulham Oak, raised in the Fulham Nurseries of Messrs. Osborne & Sons, had a similar origin, and now I believe it to be impossible to distinguish its descendants from those of the Lucombe Oak. A full account of these Oaks will be found in Loudon's *Arboretum*, vol. III."

Large Yew-trees.—Mr. Ward also mentions the fact of a Yew-tree in the same churchyard being 25 feet in circumference at a height of 4 feet from the ground, and asks if it is a reasonable conjecture that the tree was planted before the Norman Conquest. Data as to the rate of growth of Yew-trees have been supplied from trees planted in Basilidon churchyard in 1726. They have been measured in 1780, 1796, 1834, and 1889. They were found, after a commencing period of more rapid growth, to be pretty regularly increased by one line (one-twelfth of an inch) per annum. (See *Nature* October 17, 1899).

Bulbiferous Scilla.—A plant of *Scilla nutans* was received from Mr. Alex. Mortimer, 1, Paper Buildings, Temple, in which the outer bulb-scale had become greatly elongated upwards, forming a closed tube. It bore two small bulbs on the inner surface, and was greatly thickened at the summit, as if attempting to form a larger bulb; but no other than the above two were developed. They both possessed small, rolled-up, green leaves.

Orange malformed.—Dr. Masters showed an Orange having a band of paler and smoother rind than the rest of the skin. It was referred to Dr. Bonavia for examination, who writes as follows:—"It somewhat resembles the Bigaradier tricolor Orange, which has a yellow skin, with orange stripes when ripe. Again, the Bigaradier bisarrerie has smooth parts of an orange colour and warty parts yellow. These partly-coloured Oranges are normal." Dr. Bonavia would theoretically explain this peculiarity by referring to the "fingered" Orange, which he regards as a whorl of modified leaves, coalescing to form a covering to the inner portion of the fruit. To apply this theory to the case in question, he would compare the paler portion to, say, a *Eunonymus*, which may have green leaves with an occasional yellow one, or again he would compare it with striped petals, as of the York and Lancaster Rose. The objection to Dr. Bonavia's theory lies in the fact that the paler-coloured stripe did not correspond with a single carpel, but covered the half of one and the half of the adjacent carpel, so it would represent two halves of different carpellary leaves. Secondly, striped flowers are probably the result of crossing two whole-coloured flowers. This is obviously the case with *Petunias*, a purple and white-flowered species having been the parents of all our garden forms. So that it would seem more probable that the Orange had received the pollen of a smooth-skinned variety, and the tubes penetrating one placenta, common to two adjacent carpels, had influenced the surface on both sides of the division. Similar stripes have been known to occur on the fruit of one variety of *Theobroma* (*Coccos*) when pollinated by a second variety. Dr. Bonavia's report will appear in full in the *Journal of the Royal Horticultural Society*.

MARCH 13.—Present: Dr. M. T. Masters (in the Chair); Dr. Müller, Mr. Hudson, Mr. Im Thurn, Rev. W. Wilks, Mr. Lynch, and Rev. G. Henslow, Hon. Sec.

Grapes diseased.—Mr. Hudson brought some specimens which appeared to be attacked with the fungus *Gloeosporium*. Dr. Masters undertook to examine it further.

Douglas Fir diseased.—Branches were received from Mr. Rogers, of Penalltwen, Cornwall. They were from young trees, planted in an old plantation. In some cases the whole tree was unhealthy; but in others the trees grew vigorously, and only the top dies. They were referred to Dr. William G. Smith for examination.

Pear Stem constricted.—Mr. Rogers also sent a specimen remarkably constricted by a staple. The diameter of the stem being 2 inches, this was reduced to half an inch at the constriction. It had borne good crops of fruit up to last year.

Abies amabilis attacked by Chermis.—Dr. Masters showed specimens of this tree, also called A. Lowiana, with gouty branches. The bark was badly infested by an aphid much resembling that which attacks Beeches. The same remedy of syringing with petroleum emulsion is to be adopted, if the trees be slightly infested; otherwise the only means of destroying the pest is to destroy the tree by burning.

Hydnora africana.—He also showed a specimen of this remarkable parasite. It is a fleshy, leafless plant, parasitic upon plants of the genera *Cotyledon* and *Euphorbia* in tropical and South Africa. There are about eight species. The specimen was received from Grahamstown.

MEETING OF THE GHEENT HORTICULTURAL SOCIETY.

At the last meeting of the Ghent Royal Agricultural and Botanical Society the following awards were made:—Certificates of Merit for varieties of *Odontoglossum* in flower, to M. Louis de Smet Duvivier; *Cattleya Trianae* Wavriniana, to M. Sander & Co., of Bruges (*par acclamation et avec félicitations du jury*); *Odontoglossum crispum* "Rayon d'Or" (*par acclamation*); *O. crispum* "Perfection" (*par acclamation et avec félicitations du jury*); *O. crispum purpureum*; *O. crispum grandiflorum* (*par acclamation et avec félicitations du jury*); and for *O. Vinckeanum* (*à l'unanimité*), all the last five exhibits being from M. G. Vincke-Dujardin, of Bruges; for *Anthurium Rothschildianum* (seedling, 1900), from M. L. de Smet; seedling *Clivia* Madame Th. Van Wassenhove, from M. Van Wassenhove (*à l'unanimité*); *Odontoglossum Souvenir de Gendbrugge*, from M. Verdonck; *O. Mdlle. Camille Stoppelaere* also from M. Verdonck (*à l'unanimité*); and for twenty *Cypripedium Lathamianum* in flower, from M. A. Dallièr (*à l'unanimité*).

Certificates of Merit for cultivation and flowering were awarded for *Boronia floribunda*, *Acacia rupicola* (*par acclamation*), and *Acacia ovata* (*à l'unanimité*); all these three plants from M. E. Bedinghaus; and for *Anthurium Scherzerianum* var. *Madame de Smet Duvivier*, from M. L. de Smet Duvivier. Honourable Mention was allotted for *Araucaria Ghysselsiana*, from M. Léon Ghyssels; and for *Camellia Giardino Franchetti*, from M. A. Dallièr.

The Committee of the *Chambre Syndicale des Horticulteurs* Belges decided last August that from 1900 onward the following awards should be made at the end of each year to members who had obtained the greatest number of Certificates of Merit during the twelve months preceding:—A Gold Medal, two Silver-gilt Medals, and five Silver Medals. Members of the Committee residing in Ghent do not accept the medals that may have been awarded to them, in order that they may be available as an encouragement to others.

CHESTER PAXTON.

One of the best attended meetings of the season was held in the Grosvenor Museum on Saturday, when Mr. D. A. COWAN, of Gateacre Nurseries, Liverpool, delivered a lecture entitled "Reminiscences of my Travels collecting Orchids in South America," which was illustrated by a collection of South American snakes, butterflies, as well as several birds of exquisite plumage. In addition to this, added interest was given to the lecture by a collection of implements and dresses essential for the use of the explorer in search of orchidaceous plants in foreign countries. By way of introduction, Mr. Cowan graphically described the journey from Plymouth to his destination, as well as the manners and customs of the various tribes he came in contact with during his wanderings. In giving a list of the choice species of Orchids which he was fortunate in collecting, and which included *Odontoglossum crispum* (from the Pachó district), *O. Phalaenopsis*, *Cattleya Schroderae*, and a few plants of the rare and beautiful *C. Schroderae alba*, *O. Trianae*, *C. Trianae alba*, *C. gigas Sanderiana*, *O. superba splendens*, *Oncidium Kramerianum*, *Peristeria elata*, he pointed out the many difficulties that had to be contended with, not only in securing the plants, but also in getting them conveyed to a suitable port for shipment to this country.

An interesting discussion followed, in which the Chairman (Mr. John Taylor), Mr. Newstead, and Mr. Miln took part.

Mr. N. F. Barnes, in proposing a vote of thanks to the lecturer, mentioned that Mr. Cowan and those associated with him in his business had perhaps done more to popularise the cultivation of Orchids in this country than anyone else.

This was seconded by Mr. Robert Wakefield, President of the Society, who expressed a hope that the Paxtonians might at some future time have the pleasure of another lecture from Mr. Cowan.

MISCELLANEOUS SOCIETIES.

Devon and Exeter Gardeners.—On the 14th inst., the members of this association met to hear a paper by Mr. T. Slade, gr. to Lord Poltimore, at Poltimore, near Exeter. The subject was that of "The treatment of *Amaryllis*" (*Hippeastrum*), but before giving instructions as to cultural requirements, Mr. Slade briefly sketched the history of the strain of *Hippeastrum*, now common, and mentioned the several species that have been crossed with each other, as *H. equestris*, *Regina*, *reticulatum*, *peiticiatum*, and *auleum*. A quotation was given from the *Gardeners' Chronicle* of 1850, showing that Messrs. GARRAWAY, of Bristol, had raised a hybrid from *H. auleum* *platyptetatum*, and *H. peiticiatum*. Other raisers at subsequent dates were LOUIS VAN HOUTTE of Ghent, DE GRAAFF of Holland, and VETICH of Chelsea, &c.

As a rooting medium for the plants, Mr. Slade recommended two thirds fibrous loam, one third cow-manure, and a liberal addition of silver sand. Efficient drainage is essential, and overpotting is a greater evil than affording the plants too little room. Pot early in January, and shake all the soil from

the bulbs before doing so. After potting, afford them a temperature of 50° to 60°, and if the pots be plunged, do not for a time apply bottom heat, which however may be helpful when growth has become general. Scarcely any water will be needed until the flower buds are visible. When flowering is past, rather more heat may be necessary, and plenty of water and frequent syringing. As growth becomes perfected, a less liberal treatment will be required, and finally the bulbs may be dried off perfectly. It was recommended to re-pot the plants each year. The two essential details in cultivation were said to be (1) care in affording water, (2) that a proper season of rest be given.

MARKETS.

COVENT GARDEN, MARCH 22.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, in sieves:		Grapes, Belgian, per	
— Bedfords, bush.	6 0-10 0	lb., Class A...	2 0-2 6
— French Crabs,		— Class B...	1 6-2 0
bushel...	6 0-8 0	Lemons, Messina,	
— Northern		800...	7 0-10 0
Greenings, per		— Palermo, case...	10 0-15 0
bushel...	5 0-7 0	Lyches, Chinese,	
— Wellingtons,		new, pkt., 1 lb.	0 10-1 0
bushel...	8 0-10 0	Oranges, Navel...	15 6-20 0
— Various, per		— Bitters, 200...	7 0-9 0
bushel...	5 0-8 0	— Blood, 200...	14 0—
— Nova Scotia and		— Jaffa, case of 144	12 0-13 0
States, various,		— Mandarin or	
barrel...	22 6-30 0	Tangerine, case	
— Ben Davis,		of 200...	14 0-15 0
barrel...	25 0-30 0	— Murcia, case of	
— Golden Rus,		240...	8 0—
sets, barrel...	25 0-35 0	Peaches, Cape, tray	12 0-14 0
— Californian,		Pears...	4 0-10 0
cases, New		— Californian	
Town...	13 0-15 0	Easter Beurre,	
Bananas, per		cases...	18 0-20 0
bunch...	7 0-9 0	— half cases...	14 6—
Grapes, Gros Colmar,		Pines, each...	8 0-5 0
Class A, per lb.	3 6-4 0	Plums, Kelsey,	
— Class B, per		tray...	5 0-10 0
lb...	2 6-3 0	Strawberries, per lb.	
— Almeida, per		Class A...	7 0-10 0
dozen lb...	8 0-10 0	Class B...	4 0-5 0

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe,		Mint, new, p. doz.	
per doz...	2 0-3 0	bunches...	3 6-9 0
— Jerusalem, per		Monks' beard (Barbe	
sieve...	1 0—	de Capucine), p.	
Asparagus, Spruce,		bunch...	0 4—
per bundle...	0 10—	Mushrooms, house,	
— English forced,		per lb...	0 9—
per bundle...	7 0-8 0	Onions, bags...	5 0-5 6
— Giant, bundle...	7 6—	— picklers, sieve	2 6-3 0
— Paris, Green, bun.	5 6—	— Valencia, cases	6 6-7 0
— Spanish, bndl.	2 6—	— English, cwt...	5 8-6 0
Beans, Channel		— German, bags...	5 0—
Islands, per lb.	1 3-1 6	Parsley, 12 bunches	3 0-4 0
— Madeira, basket	5 0-5 6	per sieve...	1 0-1 6
— French, pkts. lb.	0 8—	Parsnips, per dozen	0 6-1 0
— Broad, or		per bag...	4 0—
Long Pods		Peas, French,	
in flats...	3 6—	pkts., per lb...	0 5—
— Beetroot, per dozen	0 6-1 0	— Flats...	6 6—
per bush...	1 6-2 6	Potatoes, Old various,	
Broccoli, Cornish,		per ton...	60 0-90 0
per crate...	10 0-12 0	— Dunbar Main	
Brussels Sprouts, p.		Crop, per ton 100	0-110 0
sieve...	1 6—	— New Channel	
— per bushel...	3 0—	Islands, frames,	
Brussels Sprouts,		per lb...	0 6-0 8
tops, per bush.	1 0—	— Tenerife, in	
Cabbage, tally...	6 0—	boxes, cwt...	14 0-22 0
— dozen...	1 3—	— French Kids, in	
— Savoy, per tally	4 0-10 0	boxes, per lb.	0 3—
Carrots, English, p.		— per cwt...	16 0—
dozen bunches	2 0-3 6	Radishes, Long, doz.	0 8-10 0
— good, cwt. bags,		round...	0 10-1 6
washed...	4 0—	Rhubarb, home	
— French, sm. flats	1 9—	grown, natural,	
Cauliflowers, p. doz.	1 6-3 6	per dozen...	8 0-4 0
— Cornish crates.	10 0-12 0	— forced, per doz.	5 0-6 0
— Italian, baskets		Salad, small, pun-	
of 18...	4 6-5 6	nets, per dozen	1 3—
Celery, red, roll, per		Seafury, bundle...	0 4—
dozen...	12 0-18 0	Scotch Kale, bush.	8 0-3 6
Chicory, per lb.	0 4—	Seakale, per dozen	
Colewort, p. bush.	2 6-3 0	punnets...	15 0-20 0
Orees, doz. punnets	1 6—	Shallots, per lb.	0 3—
Cucumbers, doz.	4 0-6 0	Spinach, French,	
Endive, new French,		crates...	5 0-6 0
per dozen...	1 3-1 6	Spinach, Winter,	
— Batavian, doz.	3 0—	small leaf, bush.	5 0-6 0
Garlic, per lb.	0 4—	Tomatoes, Canary,	
Horseradish, Eng-		deeps...	3 0-4 0
lish, bundle...	1 6-2 0	Turnips, per dozen	
— foreign, per bun.	1 0-1 2	bunches...	3 0—
— loose, per doz.	2 0—	— cwt. bags...	2 6-8 0
Leeks, doz. bunches	1 6—	— new French, per	
Lettuce, French,		bunch...	1 6—
Cabbage, dozen	1 0-1 8	Turnip tops, bags	3 0-4 0
— French Cos		Watercress, p. doz.	
(good), per doz	5 0—	bunches...	0 9-10 0

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Adiantum, p. doz.	5 0-7 0	Ficus elastica, each	1 6-7 6
Arbor-vitæ, var. doz.	6 0-36 0	Foliage plants, var.,	
Aspidistras, p. doz.	18 0-36 0	each...	1 0-5 0
— specimen, each	5 0-10 6	Genistas, per doz...	10 0-15 0
Crotons, per doz...	18 0-30 0	Lily of Valley, each	1 9-3 0
Cyclamen, per doz.	8 0-10 0	Lycopodiums, doz.	8 0-4 0
Dracenas, var. doz.	12 0-30 0	Marguerite Daisies,	
— viridis, per doz.	9 0-18 0	per dozen...	8 0-12 0
Dutch Hyacinths,		Myrtles, per dozen	6 0-9 0
per doz...	6 0-12 0	Palms, various, ea.	1 0-15 0
Ericas, var. per doz.	18 0-36 0	— specimens, each	21 0-63 0
Eunymus, various,		Pelargoniums, scar-	
per dozen...	6 0-18 0	let, per dozen...	8 0-12 0
Evergreens, var.,		Primulas, per doz.	5 0-8 0
per dozen...	4 0-18 0	Roman Hyacinths	
Ferns, small, per 100	4 0-6 0	per doz...	10 0-12 0
Ferns, in variety,		Tulips, per doz...	1 6-2 6
per dozen...	4 0-18 0		

OUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arum Lilies, dozen		Narcissus (yellow)	
blooms...	2 0-3 0	doz. bunches...	2 0-6 0
Asparagus "Fern,"		— (white) doz.	3 0-6 0
bunch...	2 0-2 6	P. Eyes, dx. bun.	5 0-7 0
Carnations, per doz.		Odontoglossum, per	
blooms...	1 6-2 6	dozen...	4 6-9 6
Cattleyas, per dozen	12 0-15 0	Roman Hyacinths,	
Eucharis, per dozen	2 0-3 0	doz. bunches...	5 0-9 6
Gardenias, per doz.	8 0-10 0	Roses, Red, per doz.	4 0-6 0
Lilac, white, bunch	3 6-6 0	— Tea, white, doz.	8 6-7 6
— mauve, bunch...	6 0—	— Yellow, Faries,	
Lilium Harrisii, per		per doz...	8 6-7 6
dozen blooms...	4 0-6 0	— Safrano, per doz.	2 6-3 6
Lilium longiflorum,		— Marchal Niel,	
per dozen...	5 0-7 0	per doz...	6 0-10 0
Lily of Valley, per		Smilax, per bunch	8 0-4 0
doz. bunches...	8 0-10 0	Tuberose, per doz.	
Maidenhair Fern,		blooms...	0 9-1 0
per doz. bunches	6 0-8 0	Tulips, per bunch	0 8-1 6
Marguerites, p. doz.		Violets, Parma, bun.	3 0-5 0
bunches...	8 0-4 0	— dark (French),	
Mignonette per doz.		per doz. bchs...	1 0-3 0
bunches...	4 0-6 0	— English, 12 bun.	1 0-2 0

POTATOES.

Main Crop, &c., 70s. to 90s.; Dunbar, 110s.; Other varieties, 65s. to 90s.; Seed Potatoes from 4s. 6d. to 7s. per cwt. John Bath, 32 & 34, Wellington Street, Covent Garden.

REMARKS.—The difference in the price of Mint is due to the different size of the bunches and leaves. Good green Parsley is short in supply, although there is plenty of Parsley, coarse, bad in colour, and of not much value. Brussels Sprouts are practically over for the season. Naturally grown Rhubarb is coming in, also a few punnets of natural grown Seakale were remarked, showing that the season is advancing. All good samples of Apples are advanced in price. Cape Grapes are varied in regard to both quality and size of cases; the prices range from 12s. to 20s.; and the colour of the fruit, white, black, red &c. The trade in old Potatoes remains about the same as last week; the French Kidneys quoted are two samples, and differ in size of package, the small packages being very regular in size, and attractive in appearance. The best Savoy in the market are from France.

SEEDS.

MARCH 21, 1900.—Messrs. John Shaw & Sons, Seed Merchants of Great Maze Pond, Borough, London, S.E., write that the lateness of the present season naturally delays and restricts the consumptive demand for field seeds, and stocks in consequence are being reduced more slowly than is usual at this time of year. Meantime values all round keep steady, and a good active business is anticipated in April. For Tares there is an improved sale at increased rates, whilst full prices are asked for Blue Peas, Haricot Beans, and Spanish Lentils. Canary-seed still tends upward, and the market for Mustard and Rape-seed keeps firm. Scarlet Runners and Canadian Wonder Beans realise former terms.

FRUIT AND VEGETABLES.

GLASGOW: March 21.—The following are the prices since our last:—Apples Canadian: Baldwins, 18s. to 24s. per barrel; Northern Spy, 18s. to 24s. doz.; Greenings, 18s. to 20s. doz.; American—Various sorts, 16s. to 20s. per barrel; Californian Newtown Pippins, 9s. 6d. to 12s. per box; Nova Scotia Apples, Baldwins, Northern Spy, Ben Davis, Golden Russets, &c., from 14s. to 24s. per barrel, according to the quality; Bananas, extras, 6s. to 8s. per bunch; No. 1, 6s. 6d. to 7s. 6d. doz.; No. 2, 5s. to 6s. doz.; other sorts from 3s. to 4s. doz.; Oranges, Murcia, 7s. to 8s. per half-case; Valencia, ordinary, 420s, 12s. 6d. to 14s. per box; large, 420s, 15s. to 17s. doz.; extra large, 17s. to 20s. doz.; Jumbos, 20s. to 22s. doz.; large 714s, 15s. to 16s. doz., all for sound fruit; Seville Bitter, 6s. to 8s. per half chest; Palermo do., 4s. to 5s. per box; Lemons, Palermo, 8s. to 10s. per case; Grapes, English, 3s. to 4s. per lb.; Mushrooms, 1s. to 1s. 2d. per lb.; Tomatoes, Tenerife deeps, 3s. 6d. to 4s. 6d. per box; cases, 6s. 6d. to 6s. 6d.; Onions, foreign, Valencia, 4 in a row, 3s. 6d. to 6s.; 5 in a row, 6s. to 7s. doz.; Turnips, 1s. 8d. to 1s. 10d. per cwt.; Carrots, 3s. 6d. to 4s. doz.; Parsley, 6d. to 8d. per dozen bunches; Cabbages, 6d. to 1s. 6d. per dozen; Cauliflowers, 1s. 6d. to 2s. 9d. doz.; Celery, 6d. to 1s. doz.

LIVERPOOL: March 21.—Wholesale Vegetable Market.—Potatoes, per cwt., Lynn Greys, 3s. 2d. to 3s. 4d.; Main Crop, 3s. 6d. to 4s. 6d.; Bruce, 3s. 4d. to 3s. 6d.; Champions, 3s. 4d. to 3s. 6d.; Turnips, Swedes, 1s. 4d. to 1s. 10d. cwt.; Carrots, 3s. 6d. to 4s. 3d. doz.; Parsley, 6d. to 8d. per dozen bunches; Onions

foreign, 3s. 6d. to 4s. 3d. per cwt.; Cauliflowers, 1s. 6d. to 2s. 9d. per dozen; Cabbages, 6d. to 1s. 6d. do.; Celery, 6d. to 1s. do. St. John's.—Potatoes, 1s. per peck; do., new, 3d. to 8d. per lb. Grapes, English, 3s. 6d. do.; do., foreign, 1s. do.; Pines, English, 6s. each; Peas, 8d. per lb.; Cobnuts, 1s. 4d. do.; Cucumbers, 8d. each; Mushrooms, 1s. 4d. per lb. and basket. Birkenhead.—Potatoes, 1s. to 1s. 2d. per peck; Filberts, 10d. per lb.; Grapes, English, 1s. 6d. to 3s. 6d. per lb.; do., foreign, 4d. to 8d. do.; Pines, foreign, 4s. to 6s. each; Mushrooms, 1s. to 1s. 6d. per lb.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending March 17, and for the corresponding period (1899), together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1899.		1900.		Difference.
	s.	d.	s.	d.	
Wheat	25	10	25	10	0 0
Barley	26	3	24	6	- 1 9
Oats	16	10	16	11	+ 0 1



METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period March 11 to March 17, 1900. Height above sea-level 34 feet.

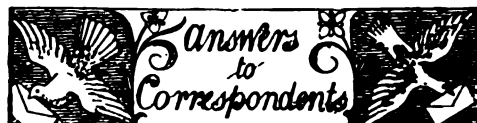
1900.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				TEMPERATURE OF THE SOIL AT 9 A.M.			
		AT 9 A.M.		DAY.		At 1-foot deep.		At 2-foot deep.	
		Dry Bulb.	Wet Bulb.	Highest.	Lowest.	At 1-foot deep.	At 2-foot deep.	At 4-foot deep.	LOWEST TEMPERATURE ON GRASS.
SUN. 11	E.N.E.	42°	40°	52°	37°	51°	42°	43°	29°
MON. 12	N.N.W.	39°	37°	56°	32°	41°	42°	43°	23°
TUES. 13	N.N.W.	45°	42°	56°	36°	42°	42°	43°	26°
WED. 14	N.N.W.	44°	41°	52°	31°	40°	42°	43°	22°
THU. 15	W.	46°	42°	54°	34°	42°	43°	43°	38°
FRI. 16	W.N.W.	38°	35°	43°	36°	42°	43°	43°	33°
SAT. 17	W.N.W.	33°	30°	54°	25°	40°	43°	43°	16°
MEANS...	...	41°	38°	54°	34°	41°	42°	43°	27°

Remarks.—A dull, cold week, with brief intervals of bright sunshine.

TRADE NOTE.

STANLEY-MOBBS & ASHTON.

This firm of importers and growers of Orchids, established at Southgate, London, N., and at Rio Janeiro, Caixa, 806, will henceforth be known under the title of Stanley, Ashton & Co.



ANCHOMANKS HOOKERI: J. M. A stove Aroid, the flowers of which exhale, as in the case of many Aroids, a villainous stench, which is attractive to insects, but hardly, as you say, to birds. The insects effect the fertilisation of the ovules. A. Hookeri is a native of Fernando Po, not of Natal.

BOOKS: G. T. There is no modern manual on Table Decorations in the English language. Anne Hassard's little work on the subject is to be picked up occasionally at the old book shops. —Greenhouse and Stove Plants: Max. The work is published by John Murray, Albemarle Street, Piccadilly.

BROWN SCALE ON FRUIT-TREES: F. P. The hot-water cure may be adopted, using water at a temperature of not less than 145°. You may leave out the paraffin, and use soft-soap, at the rate of 4 ozs. to the gallon. The remedy requires several applications, which probably were not given last year, hence the numerous scales this year. A smothering coating of clay, cow-dung, sulphur, lime, and soft-soap, made up with water into a thick paint, applying it before the buds are on the move, will generally effect a clearance of the scale and their eggs at one dressing. It is rather late, we think, for this.

COKE FOR GLASSHOUSE HEATING: F. S. The quantity required might not exceed two chaldrons a week, but it is only possible to gauge the quantity that would be burned by actual tests in mild and hard weather, carried out over several months, so many circumstances affecting the combustion of fuel.

CORRECTION.—In last issue of the *Gardeners' Chronicle*, p. 164, 1st column, 15th line from the bottom of same, after "classes" supply a comma, and substitute "for" for "of;" p. 165, 23 lines from bottom of the page, for "when," read "while."

CORROSIVE SUBLIMATE AND EARTHWORMS IN LAWNS, &c.: H. N. This substance, a chloride of mercury, is more than likely to kill the grass as well as the worms, and we would advise caution in its use, first testing it on a small piece of the turf. The best dressing for the bowling-green would consist of finely sifted yellow loam three-fifths, wood ashes one-fifth, and stable-manure one-fifth. Several dressings of this mixture, in quantity sufficient to partially hide the grasses, might be given between the present date and the middle of May. The stuff should be evenly distributed, raked in, and the lawn finally rolled. The first few mowings should be done with the scythe. If the lawn is patchy, or there are large weeds in it, such as Plantains, Dandelions, and Sowthistles, spud them out, sowing fine lawn-grasses on the bare spots, which may be sown after the first top-dressing, and before this is raked in. You may apply nitrate of soda in the ratio to water as proposed; but we think that the top-dressings above advised will suffice for one year. They are better calculated to have a permanent good effect than the nitrate, especially if the land is very light or porous. As a special manure we would recommend "Fish Manure," applying it in late winter.

LÆLIA JONGHEANA AND DENDROBIUM HILDEBRANDT: M. R., Meath. The Lælia will thrive best grown in shallow Orchid-pans, and suspended in the Cattleya or intermediate-house. The Dendrobium, from the present time until its growths are completed, should be grown in the warmest house; afterwards, when the leaves begin to turn yellow, or the new growth fully completed, place in cool, airy house, and keep dry.

LAVENDER OIL, &c.: D. S., Cork. We would advise you to apply to the Pharmaceutical Society, Bloomsbury Square, London, for the required information.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—J. M. 1, probably *Gymnogramma* (*Dictyogramma*) *japonica*; send fertile frond; 2, *Adiantum cardiochloens*; 3, *Dracena congesta*; 4, *Euonymus macrophyllus argenteus*; 5, known in gardens as *Anthericum lineare medio-variegatum*; 6, *Selaginella Wilde-novii*.—F. H. H. We must request better specimens; yours are mere scraps, and they arrived much shrivelled.—M. R. M., Neath. *Odontoglossum triumphans*, a very fine variety.—W. M., Oakwood. *Tillandsia ionantha*.—R. M., Paisley. *Dendrobium aureum*, often called *D. heterocarpum* in gardens.—Enquirer. 1, *Ada surantiaca*; 2, *Odontoglossum nebulosum*; 3, *Odontoglossum maculatum*; 4, *Odontoglossum Pescatorei*.—M. M. *Sophranitis grandiflora* ordinary variety.—H. W. Your *Codiaeums* (*Crotons*) are—1, *Laingi*; 2, *superbum*; 3, *Chelsoni*; 4, *nobiles*; 5, *Mooreana*; 6, *Williamsii*.—G. B. You had better send your *Camellia* flowers to some nurseryman who grows them largely, as Messrs. W. Paul & Son, Waltham Cross. To identify varieties it is necessary

to have means of comparing them with fresh specimens.—Amateur. *Cornus mas*.—J. B. *Santolina incana*.

NECTARINE LEAVES DISEASED: G. H. The tree is afflicted with the so-called silver-leaf disease, one that frequently attacks stone fruits such as Peaches, Plums, Apricots, and also *Prunus laurocerasus* (Laurel). There is no known cure.

RULES FOR JUDGING, &c.: J. S. This may be obtained from the Secretary, Royal Horticultural Society, 117, Victoria Street, Westminster, price 1s. 1d. post free.

SHAMROCK: J. P., and many others, including "Mac," who sends specimen of *Trifolium minus*. It is, we suppose, quite impossible to produce documentary evidence as to what was the true Shamrock, as Saint Patrick forgot to dry any specimens for reference, and left no figure by which it might be determined. The plant most generally accepted by the Irish is *Trifolium minus*, of which we have received seeds and plants from Mr. Hartland, of Cork. It is a common plant throughout Europe, thriving on poor soils, and differing from most of the Clovers in having heads of small, yellow flowers; the terminal leaflet is raised on a short stalk. *Oxalis acetosella* is a much more elegant plant, in which the central leaflet is sessile. *Trifolium repens*, the so-called white or Dutch Clover, so named from having been introduced commercially from Holland, frequently does duty for Shamrock; it is a common wild plant. *Medicago lupulina*, which has a leaf similar to that of *Trifolium minus*, is also sometimes used as Shamrock. The four-leaved Shamrock is a Clover with four instead of three leaves; it is of accidental occurrence and not common. We refer you to Dr. Prior's *Popular Names of British Plants* (1870), and to Britten's and Holland's *Dictionary of English Plant Names* (1886), for a full discussion of the subject.

TENNIS COURT: Amateur. We would refer you to our issue for January 13 last, in which at p. 32 there will be found diagrams of courts for three or four players, and a single court for two players, together with the dimensions in each case. As regards tools, you will require spades, probably a mattock for grubbing up stones and roots, a level, either straightedge or plummet, a garden line, some "boning-rods," that is, T-shaped pieces of wood for taking sights in levelling the land; iron rakes of the largest size, wheelbarrows, and planks on which to wheel the soil in levelling. The numbers of these things will depend upon the nature of the job, and whether the site is naturally adapted for a court or otherwise.

VIOLET MARIE LOUISE: W. H. S. Your plants have bloomed a long time, consequently the blooms sent us are less strong than many we receive.

YOUNG GARDENERS' OVERTIME: W. G. It is not usual to pay young gardeners for light work done in after hours, but there is a set-off to this in no deductions being made in his wages during illness or when brief holidays are taken. If your heart is in your work, as we hope it is, you should not grumble when required to do sundry jobs after the regular hours. A garden labourer is usually on a different footing, for as he has only his labour to sell, is not required to exhibit any great amount of skill, and never hopes to be better off than he is, he has a right to obtain as much as he can for his labour, and consequently to be paid for every hour that he works for his employer.

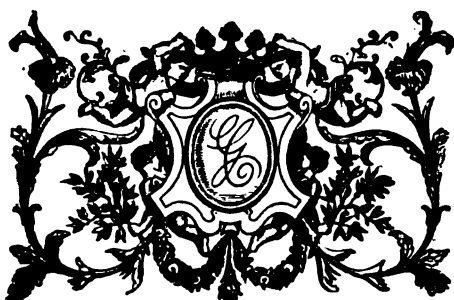
COMMUNICATIONS RECEIVED.—R. S. Margetta, next week.—J. Don.—D. T. F.—H. H., Brentwood.—H. M.—J. J. W.—A. H.—W. K.—J. Spoor.—W. M.—J. R.—W. C.—J. B.—A. D.—G. W.—E. B.—F. C.—E. F.—Matchbox.—J. B. F.—W. W.—C. W. D.—W. T. D.—J. F. Mc.—A. Pettigrew.—H. K.

Continued Increase in the Circulation of the "GARDENERS' CHRONICLE."

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

TREBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.



THE

Gardeners' Chronicle

No. 692.—SATURDAY, MARCH 31, 1900.

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FLORAL IMPROVEMENTS.

AS the floral seasons are coming on, it will not be amiss to take stock of what has been done in the way of improvements of flowers. We know next to nothing—probably because practically little or nothing was done—about the improvement of flowers by the ancients. Living in the Mediterranean regions, where flowers are so abundant, they had only to go into the fields for their supply for decorative purposes; indeed, Clement of Alexandria, in the second century, complained of the fields being stripped of their wild flowers. Not fifty, probably, were cultivated; and those chiefly for medicinal virtues. But the Cabbage Rose, *Rosa centifolia*, is described by Herodotus as having sixty petals, but this seems to have been exceptional. Improvement by careful selection was apparently little, if at all, practised.

Flowers are either regular or irregular; the latter, being always closely applied to the stem, can only be visited by insects from the front. This, it is believed, has determined their

different forms in response to the insects visiting them; while terminal flowers, being visited from all directions, remain regular, i.e., having all the parts of the several whorls alike.

The improvements of regular flowers consist in increase of size, additional colours, and doubling. Until the present century, varieties of colours were obtained by sowing the seed in different soils and conditions; though, of course, some natural crossing might have taken place unknown to the cultivator. These were the sole objects formerly, and, indeed, are so still; but it becomes a question whether one cannot go, and has not gone, too far in the matter of size. Since Dahlias looked like huge pincushions, Chrysanthemums like mops, and Begonias are six inches across, popular taste seems to protest, by asking that the original single flowers should be restored. Of course, if there is a section of the public who prefer them, or they be grown solely for prizes, like otherwise useless pedigree cows and bantams, nothing more can be said; but from an abstract point of view, we think beauty is lost sight of in some of the most modern of Flora's productions.

With regard to doubling, this seems to have been all the rage in the last century, and the question arises, why could not the ancients succeed as we do, both in size and doubling? These two aims have greatly increased during the last half of this century.* Chrysanthemums have been cultivated for ages in Japan, but the first that arrived here, as illustrated in the plates of the *Transactions of the Royal Horticultural Society*, in the first two decades, are miserable-looking affairs, with ragged borders and large centres. So, too, Roses in the "forties" had deep pits in their middles, &c.

We expect the answer to be that the improvement of flowers by change of soil alone, though great, is not so rapid as when it is assisted by judicious inter-crossing, coupled, of course, with selection. The result, at all events, is that improvements have gone on at a much higher rate during the last fifty years than they ever did before. Even the Japanese Chrysanthemums, brought by Fortune about 1845, are very inferior to their present day descendants.

With regard to irregular flowers, the great object of the horticulturist seems to be to restore them to regularity; such being really reversion to the original or ancestral forms, from which all irregular flowers have been derived. They have been, so to say, moulded by the insects, i.e., the petals are believed to have altered their forms in response to the mechanical pressures, &c., of the insect visitors. Hence, when cultivated and no longer crossed by their special insects respectively, the effort to adapt itself to the insect ceases, and the reaction sets in, so that the flower is more or less restored to its regular form. Such, at least, is the theory which has been proposed.

As examples, one of the earliest is the Pansy. In the seventeenth and eighteenth centuries, this wild flower was cultivated, but only slightly improved; but it was when careful selection was first practised upon it, about 1812, that it quickly responded. Nevertheless in 1835, it was still very irregular, for the lowest petal was almost distinct from the upper four,† so that the outline was far from being circular and regular as it is now.

Nature sometimes develops regular cup-shaped flowers at the apex of the stem, bearing nor-

mally irregular flowers, as in the Larkspur and the Foxglove. The latter has been now "fixed" by the late M. H. de Vilmorin, who found 90 per cent. of seedlings bore the large campanulate flower on the summit of the flowering stem. Terminal flowers may often be found regular in Pelargonium and the Horse-Chestnut. It is presumably due in these cases to the equalisation in the flow of nutriment.

If anyone compares a modern perfectly circular flower of the scarlet Pelargonium with the windmill-like petals of the original wild form, he will see the vast improvement acquired in this direction. Calceolarias have attained a most marvellous difference since imported from South America in the twenties. In this case the results are due to crossing and selection. The original species had tiny oval slippers, yellow and purple, about the size of a three-penny-piece. By crossing, an extraordinary variety of colours was obtained, and the size improved, as may be seen in a selection of blossoms (coloured) in the *Floricultural Cabinet* for 1835.

The bag was oval, but rather pointed above, and varied in size from a little over a three-penny-piece to that of a shilling. In 1841, the bag was circular, and 1½ in. in diameter; but in 1897 it was more elliptical, in a transverse direction, and 3 by 2 inches in size! Gloxinia is another instance of a doubtful improvement. It was originally drooping, but in 1842 it reverted to the ancestral, regular, erect, trumpet shape—and now we see nothing else.

One often wonders whether the public insist upon the retention of new forms, or whether they have to accept what the florists make for them. We do not all care for bigness, doubles, &c.; the taste for single Tulips, single Dahlias, single Narcissi, &c., is by no means evanescent, and we fancy there are not a few who still like the naturally-drooping Gloxinia to the stiff, erect form; but, of course, one must presume that those who provide us must know best which their customers prefer, when the choice is put before them. G. H.

ORCHID NOTES AND GLEANINGS.

CATLEYA TRIANAË AMESIANA.

THE collection of J. Bradshaw, Esq., The Grange, Southgate (gr., Mr. Whiffen), is specially rich in fine forms of *Cattleya labiata*, including a selection of white forms in great variety. The forms of *Cattleya Trianae* which have been recently and are now in flower, show in a remarkable degree the number of distinct flowers which a single species can produce, their flowers ranging from pure white to the warmest rose and crimson. Two remarkably dissimilar forms, standing side by side, both of great beauty, and with very large flowers, are especially striking, viz., *C. Trianae Amesiana*, with snow-white flowers, a chrome-yellow disc on the lip, and a clear pink front; and *C. T. regalis*, whose broad sepals and petals are of bright rose colour, the finely-expanded front lobe of the lip rich purplish-crimson.

DENDROBIUM CAVINIFERUM.

This pretty *Dendrobium*, of the *D. formosum* and *D. Draconis* section, which has not often appeared during recent years, has recently been sent by several correspondents for identification. It is very distinct and pretty in appearance. Its fleshy sepals, strongly keeled at the backs, are of a tawny-yellow colour, which becomes darker towards the tips, and white at the base. The wax-like petals are white, with a central faint yellowish

* We do not regard A.D. 1900 as of the twentieth century, any more than nineteen can be twenty.

† E.g., *Floricult. Cabinet*, Plate, May 1, 1835.

shade. The lip is reddish-orange, with a whitish margin, from which to the base run several raised ridges of long woolly orange-coloured hairs. It is not so showy as some of its class, but is nevertheless an attractive flower.

ODONTOGLOSSUM CRISPUM PITTÆ.

H. T. Pitt, Esq., Rosalyn, Stamford Hill (gr., Mr. Thurgood), the possessor of so many fine *Odontoglossums*, has again flowered a fine novelty, which, on account of its beauty and distinct character, deserves to be recorded. The flowers are large, the segments broad, and almost equal in width; even the labellum, though shorter than the other divisions, being broad and very showily displayed. As in other forms of *O. crispum*, the ground is white, though the rose-purple colour in the flower, both on the front and the reverse side, gives the idea that they are of those colours, with a white margin to most of the segments, and a white base to the petals. The sepals are tinged over the greater part of their surface with bright rose colour, the middle portions bearing large claret-crimson blotches, and the line within the whitish margin smaller spots of the same colour. The petals are finely fringed and decorated, as regards the middle portions, with claret-crimson blotches, a rose-coloured flush spreading from these to the white margin. The crest of the lip is yellow, with radiating reddish lines; the finely-crested blade blush-white, with one large reddish blotch in the centre, and several smaller ones around the crest. The reverse side of the flower is as finely coloured as the face, though the colours are not so bright. *James O'Brien.*

THE ROSARY.

PRUNING THE PLANTS.

WHILE all seasons are full of interest to the rosarian, there are two which are especially so—pruning time and planting time; and as the former of these is now at hand, it would be well to consider what is to be done. It may, doubtless, be asked what is the use of touching upon such a subject; so much has been written, and so much put forth on authority that it might well be considered superfluous to add anything more. But the number of questions upon the subject which appear continually in the gardening papers, supplemented by private enquiries, clearly show that that there is always something to be said on the subject. Thus, for instance, as to the time of pruning: this does and must vary, according to the locality, and I am afraid rosarians are too often in the habit of grounding their observations on some favourite locality where Roses do well, and of leaving out of sight the more difficult positions where greater care and attention are needed. Thus, Mr. R. E. West, in his eminently practical paper in the *Rosarians' Year Book* for 1900 advocates very early pruning, so early indeed as the last week in February, but then Reigate is a very favourable locality so far as climate is concerned; it is well sheltered, and although I have seen very severe weather there, heavy snow falls in October for instance, yet I know of no locality where the rosarian finds a climate more to his taste. Rosarians indeed live in all parts of the country, but I am afraid a grower in Northamptonshire, or indeed anywhere in the Midlands, who was induced to follow this advice would find that he was much crippled. The effect of the pruning here would be to cause the buds to start, and then cold weather supervening he would find all his hopes of success in exhibiting, shattered for the season. I think therefore that each grower must consult the character of his climate before binding himself to any rule on the subject. Our spring frosts come upon us so suddenly and so treacherously, that it is not well to let them have their wicked way upon our Rose-trees if we can help it; and thus it is wiser I think in many localities, if not in most, not to attempt pruning until the beginning of March,

and then to confine it to the hybrid perpetuals, leaving the Teas for a later period.

A good deal has indeed been said lately on the greater hardiness of the newer Tea-scented Roses, and it may come to this before long, that no distinction will be made in the time for pruning both sections; and so far as hybrid Teas are concerned, I think they may come in with the earlier date. A number of these are every year announced, and I suppose we shall ere long get some reliable kinds amongst them.

GARDEN ROSES.

I think, perhaps, more mistakes are made in the matter of pruning with regard to what are called garden Roses than in any other class. The garden Roses are, of course, of various kinds, but I refer rather to those of the more rampant character, such as the hybrid Noisettes, Teas, hybrid Sweet Briars, and Japanese multiflora Roses. For example, I have so often heard complaints made by amateurs that they were not able to flower Turner's Crimson Rambler. More than once a Rose-grower has come into my garden when my plant of Crimson Rambler was smothered with bloom, and he has said, "I cannot think why I don't get mine to flower. Perhaps I have got a wrong variety." I have humbly suggested, "Perhaps you do not treat it quite kindly." "Oh, yes," is the invariable reply; "I do as I am told in gardening books and papers: cut it tolerably hard, the result being I get plenty of wood but no flower." Then I have said, "I do not wonder at it—in fact, I should very much wonder whether after such treatment it did flower;" and I have pointed out that it does not really require any pruning—it should be treated in a totally different way. After flowering, all the old wood that has bloomed should be cut out, and young shoots, of which no doubt there are many, should be laid in, and on these will be produced the blooms for the following year. In the same way such Roses as William Allen Richardson, L'Idéale, and, of course, all the Dijon race, should be so treated. The same holds good with regard to the beautiful hybrid Sweet Briars, raised by the late Lord Penzance. And here let me say what beautiful subjects these are when treated as bushes on standards; it is true that their beauty is somewhat evanescent, as it is rarely one gets second blooms from them, but while they last they form a very pretty picture in the garden.

EXHIBITION ROSES.

With regard to the ordinary pruning of what are called exhibition Roses, there is little need to say much; every Rose-grower knows how he is to prune his hybrid perpetuals, pruning the weaker varieties very hard, and the stronger not so vigorously. At first sight this would seem strange directions, but it is not so; for in the former case more strength is thrown into the comparatively fewer shoots, while in the latter a good deal of vigour will be expended in the bloom.

There is one subject in connection with pruning that has occupied a good deal of attention lately; the question is asked, "Why should we not have Rose-bushes covered with blooms?" the system of pruning recommended so strongly has no doubt in view the production of the large blooms that captivate people at our great exhibitions, and one does not at all wonder at Rose-growers, who are not exhibitors, striving to reach the same degree of perfection. But there is no doubt there is a certain amount of stiffness in a Rose-garden, where all the plants are pruned on this regular routine system; and so it is said we had better try to bring our Rose-trees into a more natural condition, the shoots being left longer, leading to the formation of good bushes, which will in due season be covered with bloom, as we sometimes see in our cottage gardens.

PEGGING-DOWN.

There is one other system of pruning which I recollect very many years ago being successfully carried out by that most enthusiastic

florist the late Mr. Charles J. Perry, of West Bromwich, near Birmingham, namely that of pegging down Roses. Most Rose growers are aware that where dwarf plants are grown, very strong shoots are produced from the lower eyes of the stem in early spring; when these are produced attention should be given to them, by gently bending down the young shoots, bringing them parallel to the soil, and probably about 6 or 8 inches from it. As the growth advances they should be tied to short stakes, so as to prevent them from being injured by wind, the end of the shoot slightly shortened, as this will tend to plump the eyes, each of which will produce a flowering stem. If desired, these may be treated in the same way as exhibition Roses, and the buds thinned out, but if left alone they would form a beautiful bed of Roses. I am often surprised that this system is not more generally adopted, not for the whole of the Rose garden perhaps, but for a few beds; and where beds can be formed of the same variety, I think the effect is more telling. Beds, for instance, of Mrs. John Laing, Mrs. Sharman Crawford, Mrs. W. J. Grant, Prince Camille de Rohan, Duke of Edinburgh, and Gloire Lyonnaise would form very beautiful objects; but this could only be attempted, of course, in tolerably good sized gardens.

I may just add here that in all directions I hear good accounts of the aspects of the Rose-plants after the winter.

NEW ROSES.

The usual announcement of new Roses reaches us from abroad, but we take these things very coolly now; during the last few years hardly anything of value has come to us from the Continent, and therefore we may look with indifference on the sixty or seventy new varieties promised to us by Continental growers. We shall watch with more interest those that have been announced to us by home raisers. Some of them we have seen, and I think they will become general favourites. Those who received any of these last autumn will, I think, do well to prune them tolerably hard, as it will be more desirable for the plants to make growth, and not to rely too much on the blooms the first year. *Wild Rose.*

MELONS AS CORDONS.

THIS fashion of training the Melon is not new, and it has doubtless been discussed in these pages long ago; but my note is intended simply to point out some advantages of this mode of cultivation in places where good Melon soil is not plentiful, and labour not abundant. I first adopted the cordon when planting for a catch crop in a span-roofed house of 100 feet in length, which was filled with other plants till the end of the month of May. By growing the Melon as cordon plants, I was enabled to gain a good deal of time on the plants, which fruited in a much shorter space of time than was possible in any other way. Melon-cordons are suited only for the summer season, when the growth of the plants is very rapid. The cordons consisted of plants in 6-inch pots, the latter plunged in cocoa-nut fibre refuse over the runs. They were abundantly supplied with liquid-manure. The small amount of soil in the pots checks growth, which is consequently short jointed, although the roots run out into the cocoa-nut fibre. Jadoo-fibre is held by some to be the superior to cocoa-fibre, as it holds moisture better, and the roots have not to travel so wide in search of nutriment; but fibre of any kind is not really required, and cordons may be cultivated in a very small quantity of soil, made firm, and kept in place by means of boards, slates, tiles, &c. As has been stated, the plants were placed in 6-inch pots, and having been provided each with a stake, they reached to the lowermost training-wire when plunged in the bed, at 18 inches apart. Each plant was allowed to carry two fruits only, and the later growths made after the setting of the flowers of these plants were stopped rather closely, in order to avoid crowding of the foliage. No difficulty was experienced in

setting the first blossoms, and the cramping of the roots in the pots induced much and very early flowering. The crop of Melons left nothing to be desired in the matter of size, beauty, and flavour of the fruit.

are worthy of a trial, especially on the walls of Pine-pits, and on the rafters and principals of tall glasshouses not exactly adapted for the growing of Melons in beds. Now as to the variety to choose, this should consist of one only, many

PRIMULA KEWENSIS ×.

We are now enabled to give an illustration of the hybrid accidentally raised at Kew between *P. floribunda* and *P. verticillata* (see fig. 63). It is described by Mr. Watson in our number for March 3, p. 130, and was exhibited at a recent meeting of the Royal Horticultural Society. It shows some of the mealiness characteristic of *P. verticillata*, and has the appearance of a robust form of *P. floribunda*; the evidences of hybridity, though not wanting, are but slight.

TOMATO CULTIVATION.

MR. J. LOWRIE, in the *Gardeners' Chronicle* of March 10, writes on "Tomato Cultivation." His suggestion for growing Tomatoes on small holdings seems good, but where are these small cultivators to obtain plants sufficiently established to plant out in the first week of May? There would appear to be an opening here for a middleman who would supply the established plants, at say a half-penny per plant, and then purchase all the fruit. This middleman would require to have some "conscience," so as not to leave the growers without some profit for their labour. Growers, even for the best graded smooth Tomatoes, cannot hope to get more than 3d. per pound sold locally. The shopman will tell them that the fruit must be very fine at that price. He then will sell this fine fruit for 5d. or 6d. per pound!

At Scoone, near Perth, there is a jam-factory; jam is made from Currants, Raspberries, Gooseberries, Strawberries, and any other fruit that the villagers can produce. I do not think that the owners of the factory grow even one berry. All the fruit is grown by the villagers in their small gardens. Whatever they collect is taken to the factory daily, and a receipt is given them for what they deliver by weight, and at a fixed price; probably the price varies according to seasons. At the end of the season the receipts they hold are cashed.

Now, could not some similar arrangement be made with Tomatoes where these can be grown in the open, by owners of small holdings? The Tomato is a wonderful plant; its fruit can be turned into five different accounts, viz. :—

- (a.) The selected and graded ripe fruit for local or distant markets.
- (b.) The Italian "conserva di Pomodoro."
- (c.) Tomato chutney.
- (d.) Tomato sauce.
- (e.) Green Tomato-jam, at the end of the fruiting season.

Let us go through these products systematically :—

(a.) The fruit should be smooth, and of a moderately large size. It can be cooked in half-a-dozen ways. In the raw state it is capital as a salad, treated as follows :—Take ripe Tomatoes, peel them, cut them in halves transversely, remove the seeds should you object to them, and place them in a dish with oil and vinegar, pepper and salt, and sprinkle over the whole a clove of finely chopped Garlic, and some finely chopped Parsley. This makes what may be called a lovely salad. I am sure if you once try it you will say "Let me have some of it again to-morrow!"

(b.) The Italians, especially in the south, grow the Tomato extensively in the summer, all the surplus is made into "conserva di Pomodoro," i.e., conserve of Tomatoes, for winter use. This is made as follows :—The ripe Tomatoes are cut in two and boiled in their own juice, that is, without water. They are then pressed through a hair sieve, to get rid of the seeds and skins. The watery part of the *purée* should not be thrown away, as it contains the salts of the fruit. Then the whole is put into flat dishes and exposed to the sun to dry, after mixing with it a certain quantity of salt. I should say, some sugar would also be a good addition. While in the sun, it is every day turned and manipulated with a wooden spoon. It should be dried to a stiff consistence; it can then be

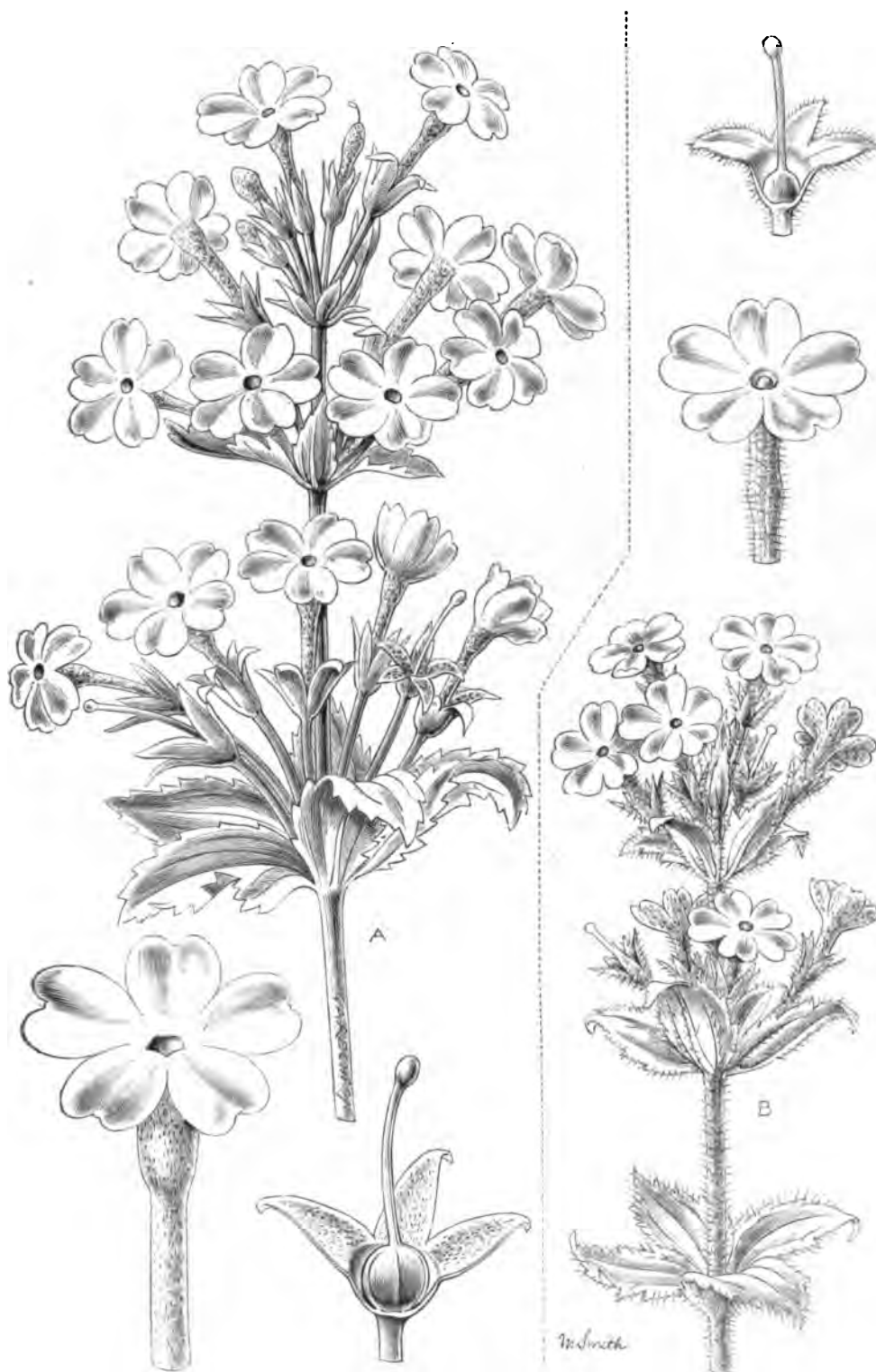


FIG. 63.—A, PRIMULA KEWENSIS ×, WITH COROLLA, CALYX, AND OVARY;
B, P. FLORIBUNDA, WITH CORRESPONDING DETAILS.

Some person may want to know what the gain is over Melons grown in the ordinary manner. Well, the large number of plants put out has made the gain very considerable, and the saving of labour is great also. I think cordon Melons

varieties in one house not being advisable, and the variety should be a vigorous grower, that is not readily fruited when afforded a large bed of soil, but which fruits satisfactorily when the roots are confined in a pot. *G. Wythes*.

preserved in small jam-pots, hermetically covered, for winter use. You can see this conserva di Pomodoro in the Italian shops in winter; it is used for sauces, for soups and gravies, for macaroni, &c. The difficulty in this country is to keep it from becoming mouldy. A chemical friend of mine informs me that the addition of a small quantity of formaline would prevent mouldiness, without changing the flavour. Another difficulty in this country may be with respect to the sun. But if made on a large scale for general consumption, the conserve may be sufficiently dried by blowing heated air over it by machinery.

(c.) *Tomato Chutney*.—This is a very fine compound, and made as follows:—10 lb. Tomatoes, 6 lb. brown sugar, 2½ bottles of vinegar, ½ lb. ginger (ground), 1 lb. garlic (ground), 1 lb. salt, ½ a small bottle of red pepper. Cut the ripe Tomatoes in halves transversely. Then add the vinegar, sugar, and other ingredients, and boil (without water) in an enamelled pot until the whole can be rubbed through a hair-sieve. When cool, put up in air-tight, wide-mouthed bottles. If well made, this fine chutney will keep for years, and makes a capital relish for curries, cold meat, fish, &c., and also for flavouring sauces.

(d.) *Tomato-sauce*.—This is made much in the same way as the chutney, only it is made thinner by boiling the Tomatoes in half-a-pint of water, and with less sugar. It can then be poured out of a narrow-necked bottle. With a little ingenuity, and a few experiments, a very nice ready-made sauce can be made out of Tomatoes, and various kinds of Tomato-sauce can be manufactured. The colour can be varied by using either yellow or white Tomatoes.

(e.) At the end of the season, when a number of green Tomatoes remain on the plants, they will make an excellent jam; but this has already been written about.

All this is intended to show that there is money in Tomatoes, if they are worked up into an industry, and are not merely grown and sold as a market vegetable, just as Barley is worked up into ale and stout, Apples into cider, bush-fruit into jams, &c.

Finally, it is erroneous to suppose that Tomatoes will not colour unless the plants are largely stripped of their foliage; this seems an unnatural proceeding. What other plant is similarly treated? Are the leaves then of no use to a plant? I had some Tomato-plants against the back wall of a vinery. Before the fruit was ripe, the roof got covered with the Vine-foliage, and the Tomato-plants were almost in semi-darkness, yet their fruits coloured beautifully. But perhaps for flavour the open air cultivation is the best.

Nor is it necessary for an abundant crop in the open to grow them on a single stem. I had several rows of the plants; I drove a stake at each end of the row, and tied long Bamboo-canes to them horizontally, and trained the plants against them fan-fashion without stripping them of side-shoots or leaves; they bore abundantly.

The established plants can be planted-out in the middle of April, if each plant is protected at night by what may be called a bell-box, made of thin boards, with a sloping top, and fitted with a pane of glass, clipped with wire; the small grower can make these boxes up himself. *E. Bonavia, M.D.*

P.S.—This is a rather long story; but how can cultivators be made practically acquainted with the worth of Tomato-growing without telling them the whole story?

HONEY-GUIDES.

PROFESSOR GEO. HENSLOW, in an article in *The Gardeners' Chronicle* of February 10, 1900, on the subject of Honey-Guides, refers to a chapter on the same subject in my *Observations on the Colours of Flowers*. In this chapter I make the statement that I had never seen an explanation of the origin of Honey-Guides.

I had read, it is true, some brief remarks of his on this subject in *The Origin of Floral Structures*, the substance of which may be learned from the following quotations:—

"If the theory be true which I am endeavouring to maintain

throughout this book, all these effects (spots and streaks) are simply the direct results of the insects themselves."

"I take them to be one result of a more localised flow of nutriment to the position in question."

"Instead therefore of a flower having first painted a petal with a golden streak the first insect visitors themselves induced the flower to do it."

"The spots and streaks have been called guides and pathfinders, as they invariably lead to the nectaries."

I did not at the time consider the above an explanation of their origin; I do not now consider it to be so, as in fact I have proved the theory to be erroneous, and what is more, Mr. Henslow now admits that his broad and unqualified statement needs amending, as will be seen from the following quotations from *The Gardeners' Chronicle*, viz.:—

"The coloration of flowers is due to the stimulus to their nourishing process induced by the irritations set up by the insects."

By letter he expresses his views thus:—

1. "Insects induce coloration generally, i.e., basal colouring."

2. "Insects induce special colouring by extra nourishment, and only in a few cases where there is yellow is it due to reversion."

In *The Gardeners' Chronicle*, he continues:—"In regular flowers, when the ground is white, or some other colour than yellow, and the base alone of the corolla is yellow, such is a retention of the ancestral yellow."

This is virtually an endorsement of my doctrine, but the idea does not appear in his book! Also he says:—"If the base colour be red or blue, this has been stimulated to pass further on. The only difference in our views is, how they came 'to pass further on.' Mr. Henslow says, by stimulus induced by irritation."

I did not explain in my book the cause of the general change of colour, for the reason that I did not deem it essential; but the facts are, according to my way of thinking, that it may be effected in varying ways, the principal one, perhaps, being change of soil, insects having nothing to do in the matter.

Again:—"With irregular flowers, some have yellow guides on darker base-colours. Such would be regarded as retentions of the ancestral yellow." It will now be observed that in each of the three classes above, having a yellow honey-guide, he acknowledges that the guide should be regarded as "retentions of the ancestral yellow." To those unfamiliar with Mr. Henslow's book, we wish to say none of the above statements appears in his work, and they are certainly at variance with what he has written about "painting the golden streak," when he now says that they were not painted, but that these yellow bases were there all the while; and as he only gives expression to these views after reading my detailed elucidation of the subject, while I do believe, contrary to Mr. Henslow in his criticism, that the same facts might be discovered independently by different observers, nevertheless, one can hardly under the circumstances restrain the conviction that these views so tardily expressed "really are (to use an expression of Mr. Henslow's) unconscious cerebral results of absorption and appropriation."

In regard to the spots and streaks "invariably leading to the nectary," I wish to point out that in Tulip, Poppy, Pansy, Tropæolum, &c., there are prominent spots which do not lead to, neither have they any connection whatever, with a nectary!

Mr. Henslow's quotation in italics is concerning the general colouring of flowers, and is not concerning the formation of honey-guides, which is quite a different matter. He compares our different statements thus:—

Mr. Henslow:—"I take them to be one result of a more localised flow of nutriment to the position."

The meaning he gives of these words is: "That the dark parts (spots) have been superadded, according to my theory."

Mr. Hervey: "This richness of colour is occasioned by the irritating influences of the bees in traversing the same route to and from the nectary, thus stimulating the flower to send more of its peculiar pigment to this point." This sentence described a honey-guide in its incipient stage when the whole flower was of a uniform colour, and the tract traversed by the bees was still of the same colour, but slightly deepened in shade by the attraction of more of the colour or pigment peculiar to the flower at that very time. The word *peculiar* was used for a purpose, and that was, as different species were likely to be of different colours, the first steps were for each flower to deepen its own or peculiar colour where the guide was to be, and afterwards for the remaining part to change colour.

Mr. Henslow: Localised-flow changes the colour of the guide, the ground colour being unchanged.

Mr. Hervey: Stimulus retains and deepens the colour of the guide, but the ground colour changes!

Thus far, adds Mr. Henslow, it will be seen that Mr. Hervey's elucidation is really an "absorption and appropriation." As the two statements are diametrically opposed, I fail to see where the absorption, &c., comes in, unless it be that insects stimulate in each case, a fact which of itself is self-evident.

Another remark of Mr. Henslow's is that I do not explain the lowering of the base colour, and that what is said as to the fading of a colour to a lighter tint, "will not account for it in flowers in full vigour before they fade." I am only too glad to supply the omission. The word *fade* was simply used for change. I mean to say that change of soil may alter a colour to white, also to yellow, red, blue, &c. In conclusion we offer a few practical tests of Mr. Henslow's theory:—

A yellow Pansy frequently changes to white; this Mr. Henslow terms a lowering of the base colour; the change is

not the work of insects. Later the upper petal changes to blue; that is a raising (?) of the base colour, but this change also is not the work of insects, for they do not alight on that petal!

Manettia has a hairy, tubular corolla; two-thirds of the lower outside portion is red, the tip yellow, but the red portion is confined to the hairs only, the whole basal colouring being yellow. This extra colouring is just where the insects do not alight, and consequently cannot stimulate!

Hundreds of flowers have a different colour on the outside of the petal where insects never stimulate; even *Begonia Rex* has red hairs on a white ground on the outside. Innumerable instances of showy bracts about the inflorescence, while the flowers themselves are inconspicuous; coloured peduncles, &c., might be cited, and purple hairs on green leaves where insects never alight!

Allusion is made to the fact that *Tropæolum majus* "never was dark red" in the wild state; that is possible, but when he adds, "the dark spots have been super-added," I beg leave to say, that I consider it to be impossible, for I distinctly state that I have seen an entire flower of the same colour as the guide! There are thirty different species of *Tropæolum*, among which are red, scarlet, yellow, orange, azure-blue, violet, vermillion, and "petals whitish, lined and dotted with gold and purple." A hybrid might easily be obtained containing the colours I mention, at all events the variety exists, and this variety has produced the example mentioned and in the manner stated! There is another variety very common, having the guide of a yellow-orange colour, which is just what Mr. Henslow seeks.

Trillium erythrocarpum is a beautiful white flower with a purple eye. I have seen the flower in the Maine Woods entirely of a purple colour!

I beg to thank the editor for the fine drawing of a *Rhododendron*, showing the position of the honey-guides, which accompanies the criticism. The Editor could not have done me a greater service than by presenting this illustration, for the reason that it is an admirable proof of the correctness of my explanation, as the numerous dark dots on the white ground are certainly not painted or super-added to the petals as a new colour, but they are really the remnants of the original one of the flower, for in cultivation different specimens can readily be found in every stage of transition from the wholly red or pink, where the incipient dots of the same colour are scarcely discernible, to a white flower with the persisting, original red dots in strong contrast; and this change may occasionally be seen on the same plant." *E. Williams Hervey, New Bedford, Mass., U.S.A., March 1, 1900.* [This controversy must now come to an end. Ed.]

GARDEN NOTES FROM SOUTH DEVON.

Acacias.—For the past month a fine specimen of *Acacia dealbata*, about 25 feet in height, has been in profuse bloom in a sheltered garden overlooking the mouth of the River Dart, the spot being entirely protected from the northerly and easterly winds. In 1899 this tree commenced to flower at an even earlier date; but, unfortunately, a salt-laden gale, blowing in from the sea before the blossoms were fully expanded, seared the tender leaves and flower-clusters, so that these were only perfected on the sheltered lower branches. Young plants of this *Acacia* develop very rapidly in this locality when a sheltered spot is chosen for them, one seedling that was put out last May having made between 5 and 6 feet of growth during the year. *Acacia verticillata* proves equally vigorous, two fine young trees, about 12 feet in height, having clouds of pale sulphur blossom in April, while *A. Riceana* and *A. longifolia* are also in good health in the open. *Embothrium coccineum* grows and flowers well in the same garden, but has not as yet attained the size of some of the Cornish specimens, or of two fine examples that a few years ago were growing at Coombe Royal near Kingsbridge in this county.

Eucalyptus.—There are a fair number of Blue Gums (*Eucalyptus Globulus*), to be seen on the sunny side of the estuary of the Dart. One symmetrical tree, between 30 and 40 feet in height, is growing not a hundred yards from the Kingswear railway station, in ground that is only a few feet above the water-level. This tree, being in an especially sheltered site, has never suffered from the frost or harsh winter winds, and retains the whole of its slender sprays intact, whereas some older trees, occupying an exposed position just outside the harbour's mouth, one of which has a girth of about 6 feet, have often suffered from their leading shoots being out back during severe winters.

Mesembryanthemums.—Even thus early in the year a few expanded *Mesembryanthemum* blossoms are to be found, mostly of the deep rose, orange, and flesh-white forms, on plants that have passed through the winter unharmed at Kingswear, close to the mouth of the river Dart. On sloping ground, almost overhanging the salt water, and in light soil, the *Mesembryanthemums* seem thoroughly at home; all the species and varieties that have hitherto been

evidencing appreciation of their quarters a selection of the best varieties should certainly be procured, since, where these plants flourish, a summer display of unparalleled splendour may be provided. A light, porous soil and propinquity to the sea appear to be the two principal elements of success, as these are present both at Tresco Abbey, in the Isles of Scilly, where 120 varieties are grown in the disintegrated granite and peat, surrounded on all

be followed. The large-leaved Hottentot Fig (*M. edule*) grows rampantly where other *Mesembryanthemums* succeed, spreading its succulent foliage over cliff faces and walls, and covering a considerable space in a short period of time. Its yellow flowers are not particularly attractive in appearance; but there is a variety with blossoms of a deep rose colour that are exceedingly handsome when fully expanded. *S. W. F., South Devon.*

AGAPETES BUXIFOLIA.

WHEN the turn of the wheel comes round, hard-wooded plants will once more have their turn, and amongst them few will give greater satisfaction than this old-fashioned greenhouse plant. It has evergreen oblong leathery leaves, and numerous red flowers in the axils of the upper leaves, as may be seen in our illustration (fig. 64) drawn by Mr. W. G. Smith, from a plant exhibited by Mr. Bennett-Poe.

MESEMBRYANTHEMUMS.

It is some years since, when at Enville, I wrote at any length about the above plants in these columns, when I tried to induce people to grow them and encourage their cultivation, but I fear the plants have not found the favour I could have wished. This is somewhat singular, for in these days novelty is so much sought after, that I wonder some enterprising firm has not taken them up. Perhaps if I were to say that in some respects they are the most remarkable and interesting family of plants in the world, I should not be far wrong, for their leaves have some of the most singular shapes known in the vegetable kingdom. Some hundreds of species used to be in cultivation in this country; and a remarkable, curious, grotesque, ornamental, succulent class of plants they are. To attempt to describe their grotesque, trailing, and other forms, would be impossible in a short note. Their flowers are remarkable for expanding mostly only beneath bright sunshine, and possess in many instances very vivid hues. Some bloom in spring, others in summer, autumn, and winter; and many carry such a profusion of flowers, as to entirely cover the foliage during the hours of expansion.

I once had the pleasure of seeing a whole house devoted to their culture; this was at Britannia Square, Worcester, and they were in the hands of an enthusiastic cultivator, and were most tastefully arranged, some being suspended from the roof, some planted on rockwork in the centre of the house, some standing on high shelves and drooping elegantly over, and concealing their pots, whilst others of more upright growth were arranged on a stage all round the house, by the side of the pathway. The arrangement was most effective, and the sight in the middle of a bright day was truly dazzling. Half a century ago they used to be extensively bedded out. I remember seeing about that time at Montreal, near Seven Oaks, some very charming beds, and I used to have some very pretty beds at Osberton. They are more hardy than some people imagine, for I have seen them in flower after the *Pelargoniums* had been killed. For out-door culture a sunny situation should be chosen, for they delight in solar light, a rockery in a sunny place is a delightful spot for to show their beauty.

Perhaps some of our friends now at the Cape will have an opportunity of seeing them in their true splendour, as many of the varieties originally came from the Cape. The art of hybridising is now so far advanced, that should any of the faculty take a fancy to improve the race, we should soon have something really beautiful. I have heard people say the great drawback to their culture is, that they will not expand their flowers during the dull winter season. This is a mistake, for some species even expand their flowers in the dead of night. Their culture is so simple and easy, it is hardly worth while to treat on it, suffice to say in pot-culture, shallow pots are the best, the soil being

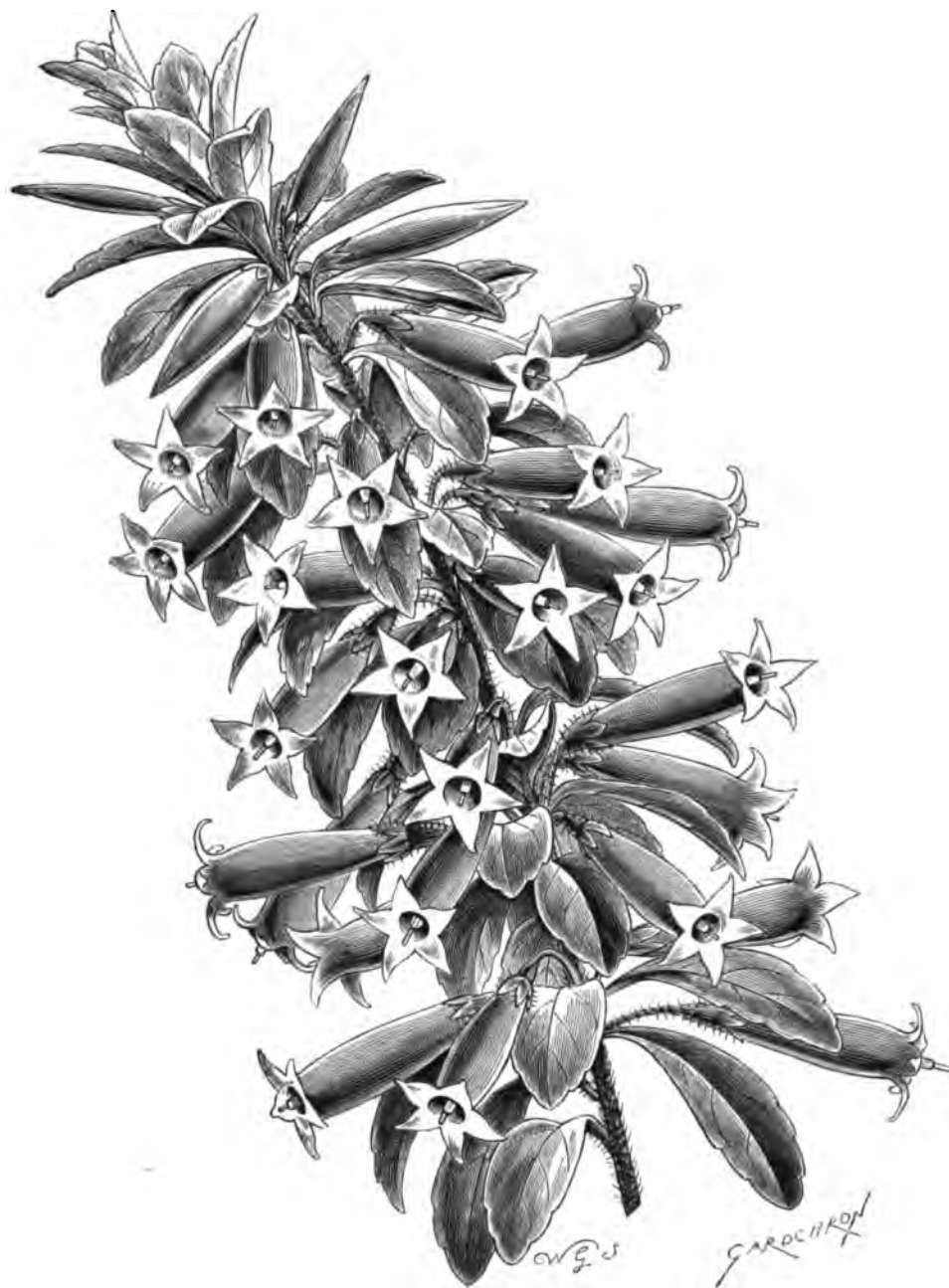


FIG. 64.—AGAPETES BUXIFOLIA.

given a trial having succeeded admirably. Many of these are exceptionally brilliant in hue. The most vivid in colouring of the whole race is *M. tenuifolium*, whose intense scarlet is absolutely dazzling in the sunlight, while *M. amœnum* is of a scarcely less bright vermillion; and *M. roseum*, bearing, as its name implies, flowers of a rich rose tint, is an exceedingly showy kind. *Mesembryanthemums* are by no means everybody's flowers, and to attempt their culture in localities where they do not naturally thrive, is but a waste of time and labour. In the comparatively rare event of their

sides by the sea; and at Abbotsbury Castle, Dorsetshire, where, just above the famed Chesil Beach, and sprinkled by the driving spin-drift in westerly gales, a fine collection exists in robust health. Even where other conditions are favourable, localities where the winter cold is severe are unsuited to the cultivation of these plants, whose fleshy leaves render them liable to damage from frost, and for this reason, even in districts where the atmospheric conditions of winter are comparatively genial, the practice of taking cuttings to fill any possible gaps in the ensuing year should

friable light loam, white sand, and peat, with broken-up old mortar rubbish and charcoal well incorporated with it. Water sparingly, and do not be in too great a hurry to discard old plants, for these bloom much more profusely than young ones. I once more advocate the more extensive cultivation of the *Mesembryanthemum*, and trust the day is not far distant when this much neglected and interesting tribe of plants will again come to the front. *Edwd. Bennett, Ash Vale, Farnboro.*

THE WEEK'S WORK.

THE FLOWER GARDEN.

By J. BARNOW, Gardener to the Earl of Ilchester, Abbotbury Castle, Dorset.

Cortaderia argentea, *C. carminea*, &c. (*Pampas Grasses*).—These noble ornamental grasses may be termed evergreen, the foliage being persistent. All of the species grown in English gardens produce their flower-spikes late in the autumn, when few out-of-door plants come into flower. With a small amount of protection during the winter months, *Cortaderias* may be said to be quite hardy. Those of our readers who plant these giant grasses should choose sheltered positions, and such as are open to the south and screened from the north-east—the winds from this quarter often proving very injurious to the plants. By a careful selection of sites, such as sloping banks, corners between bold, jutting rocks, on a natural or artificial rockery, or in front of thick belts of shrubs and Conifers, with the early and late varieties of *Kniphofias* planted at a safe distance in front of them, pretty effects may be produced in the garden. Many hundreds of the plants are to be found at Abbotbury in positions similar to those I have indicated. In the drier and also wetter parts at the water's edge they grow well. But, like the large-leaved *Gunneras*, they should be afforded plenty of space for full development, as under good cultivation the plants may have a circumference of 20 to 30 feet. The leaves should, towards the end of March, when danger from frost is past, be trimmed off with a reaping-hook, and the tufts freed from dead leaves, flower-spikes, and accumulations of rubbish. The green-heart leaves should also be shortened back, so leaving each tuft conical in shape, in order to avert the premature decay of the plants. If an increase in the number of plants be desired, this trimming makes the digging-up and division of an old clump much easier of accomplishment than otherwise would be the case. A good sized clump will make about half-a-dozen plants. If the work be performed at this season, and the new stations be trenched and manured, the divisions will bloom two years afterwards. The tools required for the job of digging up an aged clump are strong spades, and for the division of the clumps a good sharp cross-axe. It is good practice in planting to mix heavy, sandy loam with the staple, and to make the holes of a good width and depth. With this sort of treatment, we have had plants with fifty-five spikes of inflorescence of the variety *C. carminea*, a variety whose plumes are of a rosy tinge, and the entire plant besides finer in size and appearance than *C. argentea*, flowering a month or six weeks later—that is, in the months of October and November. If the inflorescence is removed from this species before it is fully open, it makes an effective and lasting decoration for halls and corridors in combination with long sprays of the Bamboo. In the season of growth, liquid-manure may be afforded occasionally with good effect.

Tree or Moutan Paeonies.—Where fresh plants from the nursery have come to hand in pots, as they should come, they should be planted without delay in situations where not much direct sunshine reaches them, at the least not in the morning hours, for the plants being early flowerers, morning frosts injure the bloom if the thawing process is rapid. I mention these shrubby *Paeonies* here, because, although they may be planted at this season, the autumn is the most suitable time, alike for old established plants which may have to be transplanted, as for small stuff in pots. *Paeonies* being gross-feeders should be planted in well enriched soil that has been trenched 3 spits deep, if it will bear so much; and when in full growth, the first or second year after planting, when it may be assumed

that the manure that was applied is getting exhausted, manure-water and manurial-mulchings should be afforded as often, and in such amounts, as may seem desirable. These aids to growth ought not to be afforded after July, otherwise the perfect ripening of the wood will be hindered, with the consequence that blooming will be poor the next year. For this reason mulches should be removed in August, and the soil stirred a little. But little pruning is required by the plants.

General Hints.—Continue to prick off seedlings of all kinds sown in pots and pans, before they spoil by being crowded together, the tender ones in boxes, replacing them in mild hot-beds or in warm houses; the hardier species, when established, in cold frames. Let them be syringed on warm days, giving good attention to them, and remove the lights entirely in fine weather.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Tomatos.—As soon as fruits form, it is very necessary to afford very liberal manurial aids, either by means of top-dressings, or applications of manure-water; a plant so free in growth as the Tomato, quickly exhausting the soil in which it is planted, so that after the fruiting-stage is reached manurial feeding should be regular and fairly frequent. A top-dressing may consist of a mixture of bone-meal, charred earth, and fibrous loam; and as a liquid-manure, nitrate of soda, or sulphate of ammonia, may be used at the rate of an ounce to a gallon of water. The plants should not be allowed to waste their strength in making superfluous shoots, but let them be kept to one leader, and pinch out all side shoots as they form. A sowing should be made for succession; seedlings potted off, and plants put into any suitable vacant position under glass.

Asparagus.—Beds of long-standing are the better for an annual top-dressing of manure, either chemical, vegetable, or animal. After removing all weeds, and lightly digging the surface with a fork, a liberal dressing of salt may be applied, to be followed with a good one of leaf-mould. On heavy soils, guano or leaf-mould should be applied in lieu of salt, and then a layer of spent Mushroom-bed dung or spent Hops, 2 to 4 inches thick, the latter being a capital dressing to apply also in November. If space will permit, a small portion of the kitchen garden should be sown with *Asparagus* seed, sowing at the beginning of the month of April in drills 2 inches deep, and about 18 inches apart. The seedlings in three years will produce fair useable heads, and the roots will be likewise strong enough to be forced.

Peas.—A sowing of second early varieties may now be made in trenched ground, not freshly manured. It is a wasteful practice to sow too thickly, and at the least the seeds should be placed 2 inches apart; varieties that grow tall should not be less than 4 feet, and may with advantage be at a still greater distance, the wider spaces being cropped with early *Tomatos*, *Cauliflowers*, *Spinach*, &c. Of the many good varieties now in the market, I would specify Dr. McLean, Sharpe's Queen, Prodigy, and Duke of Albany, as being excellent ones, which thrive in most kinds of soil.

Celery.—White varieties raised from sowings made early in the present month, will now be fit for pricking-out in boxes or frames. If in the latter, the soil should be made up to within a few inches of the glass, or the frame sunk into the bed of manure the necessary depth. The compost made use of should consist of light materials, such as leaf-mould and rotten manure. As these plants are for a very early supply, too much space need not be allotted to them. Seed for the main crop of *Celery* should be so sown more or less early, according to latitude, in boxes, or under hand-lights, using a very light, somewhat sandy soil, no artificial heat being necessary. When sown in boxes, the shelter of a cold frame suffices. Among dwarf varieties, I may mention Wright's Giant White, Major Clarke's Red, Standard, Bearer, and Wheeler's Pink Perfection, the latter, I think, being superior to all others.

Seakale.—When the roots that have been forced where they are grown in the open have ceased to afford any more cuttings, the litter should forthwith be removed, and the lids of the pots taken away,

so as to afford the crowns partial exposure, the pots being removed a week later, but putting a sprinkling of straw over the crowns if the weather is ungenial. If forced Kale is still required, crowns that have been kept uncovered so far should have the forcing-pots placed over them, and the partially spent litter from the earlier beds put around these. *Seakale* may be grown from the thongs that are removed from the roots used for forcing in the Mushroom-house, which, being placed right end up in boxes of sandy loam and kept in a cool place under cover, will push forth buds. As soon as this stage is reached the sets should be planted on some fully exposed plot of well-trenched and manured ground, at a distance of 2 feet between the rows, and 15 inches from plant to plant. Seed may be sown this month in shallow drills, drawn 15 inches apart. It is well to soak the seeds for twelve hours in warm water, in order to hasten germination.

Planting.—Plant out *Cauliflowers* from cold frames. Remove a portion of the soil from the same frames, and replace it with fresh loam and leaf-mould, then prick out young *Leeks*, *Brussels Sprouts*, *Cabbages*, and *Cauliflowers*. Any vacancies in the rows of the autumn-sown *Onions* should be made good forthwith. Lift and divide clumps of *Chives*, replanting the divisions on a piece of retentive land. Complete the planting of *Horseradish* and *Jerusalem Artichokes*. Plant *Red Cabbages* in deep, rich soil at 18 inches apart, and make an examination of those planted in the autumn, removing those that appear likely to bolt, and making up the rows with spring-raised plants.

FRUITS UNDER GLASS.

By J. ROBERTS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Cucumbers.—The increased sun heat will be of great advantage in permitting the use of higher temperatures by day and night, and a greater amount of atmospheric moisture—conditions favourable to the production of *Cucumbers*. A night temperature of 65° to 70° will be sufficient on cold nights, but 5° higher may be afforded during mild weather, and will be attended with more profitable results. A temperature of 75° to 80° should be obtained early in the day, air being applied when the thermometer has reached 80°. The temperature may be permitted to run up to 90° with sun heat. These high temperatures will call for frequent damping of the walls, paths, and other surfaces; a system of liberal feeding is very necessary, in the form of liquid-manure, afforded at every application of moisture to the roots after the plants have come freely into bearing, and this, together with top dressings of light fibrous loam and artificial manures, will do everything that is needed to maintain rapid growth. Let the fruits be well thinned till such time as the plants are established and capable of carrying a full crop. Stop the lateral shoots at one leaf beyond the fruit, and remove superfluous shoots and spent foliage. After this date there is no difficulty in getting good *Cucumbers* from plants grown in hot-bed frames and brick-pits. We use two or three light frames as being the most convenient sizes. Let the necessary quantity of stable-dung and tree-leaves be prepared for a bed 4 to 5 feet deep, and if for a frame or frames, let it be sufficient to make the bed 1 foot wider and longer than the frames all round. Having built the hot-bed, place the frames thereon; then place half a wheelbarrowful of light loam and leaf-mould in the centre of each light, and plant when the temperature of the bed has fallen to 85°. The frame must be covered with double mats at night, and very carefully ventilated during the day, using in cold bright weather some hexagon netting over the apertures.

Figs.—Where trees in borders are bearing full crops of fruit, liberal applications of liquid-manure may be made, and a top-dressing of rich material afforded, provided the trees show healthy root-action. Let the balance of growth in each tree be well maintained, by stopping or removing rank-growing shoots. Suckers which arise from the bottom of the stems should also be removed, so as not to permit a full flow of sap to be diverted from the stems. The trees should be forcibly syringed in fine weather, and a thick coating of flowers-of-sulphur applied to the hotwater-pipes, which will assist in keeping red-spider in check. On very vigorous trees a second crop of fruit will be showing

freely; and to lessen the strain on the strength of the trees, these fruits should be reduced to three on the strongest, and two on the weaker shoots, selecting those that stand at about equal distances apart on the shoots. Keep all shoots tied down and regulated as growth proceeds, and admit every ray of sunshine to the fruits. Pot Figs, if bearing heavily, are benefited by dressings of rich loam put round the rims of the pots, the centre being filled with finer loam, coarse, dried cow-dung, and soot. Apply liquid-manure frequently and copiously in preference to dribblets. Stop all gross shoots, and remove any that are likely to cause a dense crown of branches. Temperatures for the early Fig-houses may range from 60° to 65° by night, and 70° to 75° by day, with a rise to 85° with sun-heat. Let the ventilation be freely afforded in favourable weather, a constantly stuffy atmosphere making the foliage tender and very liable to infestation by red-spider later on, and is also a cause of fruit-dropping just before the second swelling commences.

THE ORCHID HOUSES.

By W. H. Younge, Orchid Grower to Sir Frederick Wigan, Bart., Clare Lawn, East Sheen, S.W.

Repotting of Cattleyas.—The question whether Cattleyas should be potted now should be determined by the appearance or otherwise of new roots, and chiefly they will comprise such species as *C. labiata*, *C. Trianaei*, *C. Mendeli*, *C. Mossiae*, *C. Lud-demanniana*, *C. Percivaliana*, and various hybrids. Those not in need of a new receptacle this season may be afforded new surface material when there are signs of activity in the plants.

Repotting of Dendrobiums.—The root-disturbance caused by repotting results in giving the plants a decided check, and if it be done at the wrong time re-establishment is slow and difficult. The best time is when root activity is commencing; it is therefore desirable that a frequent examination of these plants should be made during the next two months. Wooden baskets and rafts are best for Dendrobies, especially baskets of the pot shape. An objection urged against the employment of baskets is, that when a larger one is required, the old one has to be buried in the new materials, a proceeding which is undesirable for several reasons. The compost may consist of Orchid-peat fibre of the best quality, and a small quantity of fresh sphagnum-moss. A very thin layer of this should be laid over the drainage. In the case of species which make strong growth, if pots be used, small crocks should be mixed with the compost. Excepting *D. Dalhousieanum*, *D. thyrsiflorum*, and *D. simbratum*, and others of similar habit, Dendrobiums are grown most successfully when suspended, even if it be only a few inches above the stages. With few exceptions, they are the better for being afforded strong sunlight, consequently the nearer the glass the better. When convenient, the natural disposition of the growths should not be interfered with, as in my belief flowering is thereby improved. I will instance *D. Wardianum*, the young growths of which, if trained erect, only produce flowers at a few of the upper nodes; whereas, allowed to droop naturally, from twelve to eighteen nodes will produce three or four blooms apiece. After the flowering season, the stems may be tied up to make space for the growths that follow. The undermentioned species will probably need attention at this date:—*D. Wardianum*, *D. nobile*, *D. Falconeri*, *D. × Cassiope*, *D. × Venus*, all of which thrive in the Cattleya-house; and *D. superbum*, *D. aureum*, *D. × Ainsworthii*, and allied hybrids, which require the heat and moisture of the East Indian-house.

Deciduous Calanthes.—In the cultivation of these species, success is more often due to the suitability of the glass-house in which the plants are grown than to the sort of compost they are potted in. Certainly, given other favourable conditions, success seems largely to hinge on the methods of culture pursued during the first stages of growth and in the careful application of water at that period. When the new growths have grown about 1 inch, the old compost should be entirely shaken off, and the dead roots shortened to within an inch of the base. Having prepared a compost consisting of one part each of peat, fibrous loam, and chopped sphagnum-moss, together with some pulverised cow-dung, sand, and finely-broken crocks, plant the pseudo-bulbs in suitably-sized pots, three-parts filled with drainage. The compost must not be raised higher

than the rim, and the base of the coming growth should be just below the surface when the operation is finished. The whole should be made somewhat firm but not hard, and the plants should then be placed in a humid-house, having a high temperature, where there is no drip from the rafters to lodge in the developing growths. Until the roots reach the sides of the pots just as much water should be afforded as will moisten the surface, though an immersion to half the depth of the pot once a week, commencing three weeks after repotting, will supply the necessary moisture at the bottom. Shade from strong sunlight with very thin blinds.

PLANTS UNDER GLASS.

By T. EDWARDS, Foreman, Royal Plant Gardens, Frogmore.

Campanula calycanthema.—These plants in their different varieties should now be potted up, that is before active growth has commenced, using 6 and 9-inch pots for them, and standing them out of doors for a time. This species does not bear forcing, but it will succeed in the temperature of late Peach-houses, and is a very showy decorative plant for the cool conservatory during the months of May and June. *C. pyramidalis*, raised from seeds sown in the spring of 1899, which are growing in 6-inch pots, may be shifted into larger pots, the soil used consisting of a good loam. This species has a long period of growth before it flowers, and if required before the autumn display, the plants should be afforded gentle heat, together with plenty of fresh air.

Stoves.—The frosty nights and cold winds now prevailing generally render the use of strong fire heat in the various glasshouses very necessary in order to maintain the proper temperatures, and extra care should in consequence be taken to mitigate the dryness of the air by a frequent damping of the paths, and the space beneath the stages, and on sunny days by affording the plants a good syringing at closing time, allowing the temperature afterwards to rise to 90°. Let strict attention be given to the damping of the floors up to 10 p.m.

Nepenthes, and other plants in baskets, which have rooted into the new materials, should have the latter dipped in tepid rain-water. The tanks in the various houses should be filled overnight, so that the water may be warmed for use next day; adding hot water if the tanks are not warmed in some way, or a check to the plants, resulting in stunted growth and deformed foliage will follow.

Forcing-house.—As this house will now be relieved of many of the plants, more space may be given to Hydrangeas, &c. The flowering shoots of *H. paniculata* should be secured to neat sticks, the foliage freely syringed to clear it of red spider, and liberal applications of manure-water afforded at the root. If blue flowers of *Hydrangea hortensis* are desired, some iron filings or nails may be placed in water, which, after standing a few days, may be used in small quantities along with clear water, instead of manure, increasing the strength of the mixture as the plants come into flower.

Gloxinias, Begonias, Primula obconica, &c.—The timely pricking off of seedlings before crowding takes place, should receive attention. The seedlings may be pricked-off into pots of 4 to 6 inches diameter, clean, and well crocked with moss, or small siftings of loam over the latter, and filled almost to the rim with light sandy soil. Having prepared a number of pots, set them on level ground, and afford a copious watering with a very fine-rosed pot, subsequently placing them in a warm-house a day or two before using them. A small cleft stick should be used in lifting and removing, a pointed stick being used to make the holes. The number of seedlings placed in a given-sized pot will vary with the species, but ten to twelve are usually as many as a 4-inch pot will hold conveniently. Press the soil close round the plant, sprinkle lightly with water, and see that not much space is left for water, and there will be no damping-off. Shading is of the utmost importance, as an hour of sunshine may kill the whole of the plants.

Grevilleas, Impatiens Sultanii, Clerodendron fallax, &c., may be potted in small 60's, direct from the seed-pan. *Torenia*s may be transferred at once to the flowering-pots to the number of six plants to a 5-inch pot; a compost consisting of half peat and loam with sharp sand may be used.

Greenhouse Plants.—*Francoa ramosa* may receive its final potting into 5 and 6-inch pots, using light, sandy soil only, as when potted in rich soil the flower-spikes often get spoiled by becoming fasciated. Marguerites may be potted and grown in a cold greenhouse-pit, syringing them occasionally with petroleum emulsion, or with a small quantity of soft soap and warm rain-water; and in order to mitigate the ravages of the leaf-miner fly, remove and burn every affected leaf.

Miscellaneous.—Attend to stopping the young shoots of specimen Fuchsias, removing all of the flowers which show, and turning the plants round occasionally. Divide the roots of Cannas, and pot the divisions for successional flowering; make the main sowing of Primulas and Cinerarias for next autumn and winter flowering. Pot up the rooted Carnation cuttings, and place them in cooler quarters. Montbretias should now be potted and placed in cold pits.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener, Stoke Edith Park, Hereford.

Red Spider.—This pest will soon be putting in an appearance in Gooseberry plantations that are liable to attacks. As soon as detected, prompt measures for their eradication should be taken. Various insecticides have been recommended for this purpose, and one named "Kilmright," which I have tried at Stoke Edith, was very effective. It is prepared for use by mixing it with hot-water in the proportion of 2 ounces to 1 gallon of water, and applying it forthwith by means of a knapsack-pump or a spraying syringe. It is prudent to spray the bushes whilst growth is dormant with the caustic wash mentioned in previous calendars.

Washing trees.—Before Cherries, Pears, and Plums on walls actually come into blossom, it is good practice to spray them with an insecticide, which has the effect of keeping them clear of insects until the flowers have set. The trees in the open ground may also be treated similarly with good results. Last season I made use of a new preparation—Bentley's Specific—on Apple-trees which answered well. This has the same effect on caterpillars as Paris Green, and the advantage of being more easily applied. Many persons cannot understand the necessity for washing and spraying fruit-trees year after year, but having followed up this practice for several years in succession, I can without hesitation say that in the long run preventive measures are by far the cheapest; and if the foregoing dressings are not fully successful, they go a long way towards the destruction of fruit-tree pests, and securing of better crops of fruit.

Thinning Pear-blossom.—Many varieties of Pears carry too many blossoms, and when all of them are allowed to expand, they greatly weaken the trees. These varieties should have many of the trusses thinned without delay, breaking them off with finger and thumb. Failure to thin the flower-buds of Pears is a common cause, too, of the partial or entire failure of a crop, and this in spite of abundant flowering.

Trees, Late-planted.—Owing to the wet state of the soil, the proper planting of trees has been much delayed; but now that the soil has got into a workable state, trees and bushes can be made firm in the soil by trampling around them. The trees should then be secured firmly against the wind, and the soil over the roots mulched. If hares and rabbits are able to get at the trees, see that the latter are protected.

THE QUEENSLAND FLORA.—Mr. F. MANSON BAILEY has issued the first part of a complete enumeration of the plants of Queensland. He has collected his former scattered notices, and copied from BENTHAM'S *Flora Australiensis* such descriptions as were necessary for his purpose. The book is, therefore, to some extent an adaptation of the *Flora Australiensis* to the needs of the colony of Queensland, whose flora, from its tropical nature, differs materially from that of the other Australian colonies. Mr. BAILEY, one of the most indefatigable of botanists, has added many useful notes, and several lithographic illustrations. The first part extends from Ranunculaceæ to Anacardiaceæ, and has a detailed index. We need not say more to show the benefits Mr. BAILEY has conferred on the botanist.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR APRIL.

TUESDAY, APRIL 3	Brighton and Sussex Horticultural Society's Show (2 days). Cornwall Daffodil & Spring Flower Society's Show (2 days).
WEDNESDAY, APRIL 4	Royal Caledonian Horticultural Society's Show. Shropshire Horticultural Society's Show, at Shrewsbury. Narcissus Exhibition, at Bourne-mouth (2 days).
THURSDAY, APRIL 5	Linnean Society, Meeting.
TUESDAY, APRIL 10	Royal Horticultural Society's Committee. Manchester Royal Botanic Society's Spring Show (2 days). Manchester and North of England Orchid Society.
WEDNESDAY, APRIL 11	Royal Botanic Society's Exhibition, at Regent's Park. Royal Horticultural Society of Ireland, Exhibition.
THURSDAY, APRIL 12	Manchester and North of England Orchid Society, Meeting.
FRIDAY, APRIL 13	Good Friday.
MONDAY, APRIL 16	Bank Holiday.
TUESDAY, APRIL 17	Paris Universal Exhibition, Temporary Show opens.
WEDNESDAY, APRIL 18	York Florists' Exhibition.
THURSDAY, APRIL 19	Linnean Society, Meeting.
TUESDAY, APRIL 24	Royal Horticultural Society's Committee. National Auricula Society's Show, at Drill Hall. Chesterfield Horticultural Society's Exhibition.
WEDNESDAY, APRIL 25	Royal Horticultural Society's Examinations take place. Midland Daffodil Society's Exhibition, at Birmingham (2 days).
THURSDAY, APRIL 26	Manchester and North of England Orchid Society, Meeting.

SALES FOR THE ENSUING WEEK.

MONDAY, APRIL 2.	Roses, Greenhouse Plants, Lilies, Begonias, Tuberoses, &c., at Protheroe & Morris' Rooms.
TUESDAY, APRIL 3.	Trade Sale of Orchids at Cragg Royd Nursery, Rawdon, near Leeds, by order of Messrs. J. W. Moore, Ltd., by Protheroe & Morris, at 12 o'clock. (Two days).
WEDNESDAY, APRIL 4.	Japanese Lilies, Roses, Herbaceous Plants, Gladioli, Decorative Palms, &c., at Protheroe & Morris' Rooms.—Established Orchids, by order of Messrs. Stanley Hobbs & Co., Roses, Fruit Trees, Lilies, &c., from Japan, at Stevens' Rooms.
THURSDAY, APRIL 5.	Herbaceous Plants, Ornamental and Flowering Plants from Holland, Roses, Lilies, &c., at Stevens' Rooms.
FRIDAY, APRIL 6.	Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—46° F.

ACTUAL TEMPERATURES:—

LONDON.—March 28 (6 P.M.): Max. 44°; Min. 35°.

March 29.—Bright; cold.

PROVINCES.—March 28 (6 P.M.): Max. 46°, S.W. Ireland; Min., 37°, N.E. Scotland.

The Royal Horticultural Society.

FROM an official announcement in our last number it will be seen that the Council of the society has decided to submit for consideration a definite proposal to the Fellows with regard to the selection of a site for the experimental garden in place of Chiswick. So far good; we thank the council for this opportunity it has afforded of considering the matter. The proposals, however, are of such vital interest to the future of the society that the

mere summoning of a meeting to confirm the action of the council (as would probably be the result), is not adequate. In the first place, the Fellows ought to know how long the lease at Chiswick has to run, and whether its abandonment at this present time is absolutely essential. Before the meeting is summoned the council will we hope circulate among the Fellows a concise statement, showing the exact position of the society, and setting forth as impartially as possible all the proposals that have been made, together with full details of that one in particular which the council have agreed to recommend for adoption.

The object of the council is stated to be the celebration of the centenary in 1904. What is the best method of effecting that purpose? Various suggestions have doubtless been made to the Council, but the Fellows have only been informed, and that at present very imperfectly, of one. We will mention some others that have been suggested by our own correspondents:—

1. The holding of a great International Exhibition on the lines of that of 1866, with such modifications as may be necessary.
2. The erection, or at any rate, the acquisition of suitable premises for the Society in London, to replace the present makeshift arrangement.
3. The retention of Chiswick as a temporary matter, or till the expiration of the lease.
4. The postponement of the plan for the acquisition of a trial-ground at some distance from London.
5. The formation of a Horticultural College in connection with the proposed new trial-ground.

Some of our correspondents advocate this last scheme, but with the provision that the Society shall be entirely free from all financial responsibility; whilst others are much opposed to it on any terms.

Most of the suggestions, it will be seen, involve great outlay—an outlay far beyond the resources at the disposal of the Society. Whence then is the money to come? No doubt the Council has definite ideas on this subject, and if so it is to be hoped that it will make them public before the meeting.

So far the Fellows of the Society at large have been singularly apathetic in this matter. We hope they will now remember their duty to the Society, duly consider the questions laid before them, and make public their opinions before the Council is definitely committed to any scheme whatever.

Twice within the life-time of this Journal the Society has been almost completely ruined. We wish to do our best to aid the Council in averting the possibility of a third repetition of such a catastrophe.

Once—and probably more frequently—once the Society had a splendid opportunity before it, as perchance, it may have now for aught we know; it failed to avail itself of that chance for what doubtless seemed to the Council of the day sufficient reasons. It was left to a private committee to carry out the most important horticultural exhibition and congress that has yet been held in any country. The Journal of Proceedings, the gift of £1000 to the Pension Fund of the Gardeners' Royal Benevolent Institution, and, last but not least, the Lindley Library, remain to this day as proofs of the energy of the committee, and the success of their enterprise. All this was accomplished without calling on the guarantors for a penny-piece. Are the resources of horticulture less now than in 1866? We think not.

The year 1904 is still at a distance. Immediate action is not necessary. The future course of the Royal Horticultural Society is much too important a matter to be decided on without the fullest consideration. We thank the Council for the opportunity they now promise to the Fellows to consider the proposals made for the celebration of the Centenary, and we trust that the Fellows on their parts will not be remiss in expressing their opinions before it is "too late."

LINNEAN SOCIETY.—The next meeting of this Society will be held on Thursday, April 5, at 8 P.M. precisely, when the following Paper will be read: Dr. D. H. SCOTT, F.R.S., F.L.S.—*Sphenophyllum* and its allies, an extinct Division of the Vascular Cryptogams. Exhibitions: Mr. E. BIDWELL, F.Z.S.—Specimen of Beechwood showing old carving singularly embedded by subsequent growth. Mr. W. BOTTING HEMSLEY, F.R.S.—A selection of Dr. A. HENRY's latest botanical discoveries in Western China.

KEW.—Where can one escape from London's unlovely suburbs? Where within reasonable distance can one enjoy the most beautiful sylvan scenery, the sense of repose, and all the amenities of an English park? The answer is at the Royal Gardens, Kew. Science is cared for in other departments of that great establishment, art is followed throughout, but around the lake, and in the little area surrounding the Queen's Cottage, Nature has full sway, and nothing but the necessary sinuous path disturbs the sweet sense of calm and beauty. It is only lately, by the gracious act of the Queen, that this delicious spot has been thrown open to the public, and now, according to the *Daily News*, Her Majesty's office of works proposes to erect the National Physical Laboratory in the Old Deer Park, in close proximity to the ideally beautiful spot we have mentioned. We English seem to be perfectly incorrigible in such matters. If by accident we do get a finely designed building or a well planned street, then we at once set to work to erect some ugly incongruity which spoils the whole effect. We trust this may not be the case at Kew. The Physical Laboratory is a necessity of the times; the Deer Park has an area of about 350 acres—abundance of space therefore whereon to build the new laboratory without encroaching on the seclusion and beauty of Kew. Far better would it be to place the laboratory at the Sheen end of Richmond Park, and to include the whole area of the Deer Park, except the comparatively small area required for recreation purposes and for the observatory within the limits of the Royal Gardens, Kew. Brentford, Richmond, Isleworth, are daily encroaching, at least as to smoke and smell, on the Royal Gardens. Cultivation, as in the suburbs of London generally, is becoming more difficult, and in some cases death ensues from the foulness of the atmosphere. No effort therefore should be spared to protect, and if possible to extend our noble Kew.

THE DRILL HALL.—In these cold March days the Drill Hall is a cruel place both for those who have to pass some hours in it, and for the plants exhibited. On a recent occasion, many of those who sat at the Orchid Committee, or remained to listen to Mr. LYNCH's lecture, had occasion to lament their temerity. Such curtains as there are are ludicrously inadequate. Surely they might be supplemented by a few more yards of stuff, and suitable screens might be placed in front of the doors or at the back of the auditorium. Arrangements for the supply of clean towels seem to be non-existent.

BULB EXPORTERS' ASSOCIATION.—We learn that an association under the above style has been formed by the bulb exporters of Holland, in order to protect their trade interests. A status enquiries department, and another for the collection of debts, are special features. The managing

director of both these departments is Dr. J. SPOOR, solicitor at the Haarlem court of justice, who acts also as a secretary to the association. The association is divided into six sections, according to the principal countries to which bulbs are exported to, viz.:—1, United States of America with Canada; 2, Great Britain and Ireland; 3, Germany and Austria; 4, France and French-speaking countries; 5, Russia; 6, Scandinavia and Denmark. Each section has its own committee and management; the United States section being a continuation of the late Exporters Bond at Liège. The sections' presidents represent their sections in the general committee. Mr. T. VAN WAVEREN is elected President; Mr. ERNST H. KRELLAGE, Vice-President; Mr. J. H. WENTHOLT, Treasurer, &c. The association which was started in February, consists already of 115 section members. The seat of the association is at Haarlem, and all correspondence should be addressed to Mr. J. SPOOR, Wilhelmstraat, 24, Haarlem.

"ICONES SELECTÆ HORTI-THENENSIS."—The third part of this publication, devoted to the illustration of plants which have flowered in the collection of M. VAN DEN BOSSCHE, Senator at Tirlmont, contains figures and descriptions of the following plants:—*Berberis tenuifolia*, Lindley, a Mexican species, with which *B. fraxinifolia* is joined; *Grewia parviflora*, Bunge, a Chinese species, which is hardy at Tirlmont; *Carmichaelia australis*, Robert Brown, a New Zealand species; *Ceratopetalum gummiferum*, a very interesting greenhouse plant, decorative in its rosy calyx. It is prized at Christmas-time in Australia. *Pisonia hirtella*, Humboldt, Bonpland & Kunth, an interesting greenhouse plant, native of Mexico, as well as of various parts of South America.

"WEST INDIAN BULLETIN."—The second number, which has just reached us, contains the full report of the proceedings at the Agricultural Conference held at Barbados, under the presidency of Dr. MORRIS, C.M.G., Imperial Commissioner for Agriculture. Forty representatives were present from British Guiana, Trinidad, and various islands. The Sugar-cane in its various aspects naturally occupied most of the attention of the Conference. A note on the artificial cross-fertilisation of the Sugar-cane, by Professor D'ALBUQUERQUE, is valuable, as showing the possibilities which this discovery presents. The report affords evidence that the Imperial Department and its energetic head are likely to effect great good, if only by overcoming the *vis inertiae* of the planters.

"MY GARDENER."—The second edition of this book entitled, "A Practical Handbook for the Million," has reached us. It is the work of our old correspondent, Mr. H. W. WARD, who for a quarter of a century directed the gardens at Longford Castle, near Salisbury. The work is arranged alphabetically in sections devoted respectively to vegetables, fruits, and flowers. The index is rather a table of contents, than an index properly so-called. It is well adapted for the use of cottagers and allotment-holders, and will indeed be found useful by all classes of gardeners.

THE NATIONAL AURICULA AND PRIMULA SOCIETY (SOUTHERN SECTION).—The twenty-third annual Report of this Society and the schedule of prizes to be offered at the next exhibition may now be had from the Secretary, Mr. HENWOOD, 16, Hamilton Road, Reading. As we have previously announced, the Society's exhibition will be held at the Drill Hall, James Street, Westminster, on April 28, under the auspices of the Royal Horticultural Society.

THE NATIONAL CARNATION AND PICOTEE SOCIETY (SOUTHERN SECTION).—The twenty-third annual report of this society, together with a schedule of prizes to be offered at the forthcoming exhibition, is to hand. At this show, which it is expected will take place on Wednesday, July 25,

at the Crystal Palace, the classes for yellow-ground Picotees have been made the same as for flowers with a white ground, and there are several other modifications in this enlarged schedule. A Silver Cup is offered to the winner of the highest number of aggregate points in the classes for undressed blooms, for which several new and interesting classes have been provided. The secretary is Mr. T. E. HENWOOD, Auricula Villa, 16, Hamilton Road, Reading.

SEEDLING SUGAR-CANES.—It is curious to see how a botanical discovery, which at first and to many people seems of botanical interest only, may turn out to be of great economic importance. Down to a few years ago no one had seen the ripe seeds of the Sugar-cane—probably because they had not looked for them. Propagation was made from cuttings alone, and consequently there was a comparatively limited range of variation. Now seedlings are being raised, and some of these prove to be so much richer in sugar than others, that their cultivation may make all the difference between profit and loss. A seedling known as "B. 147" has given more than half-a-ton per acre, or nearly 25 per cent., more than "Caledonian Queen," and more than three-quarters of a ton than the "Bourbon." Mr. ROBERT THOMSON, late Superintendent of the Botanical Department, Jamaica, writing in our columns, and subsequently in the *Times*, concludes that if an average of only 2 to 2½ tons per acre can be produced, great benefit must eventually accrue to the West Indian planters. Mr. THOMSON tells us that the average yield per acre in Jamaica for a long series of years stands at less than 1 ton, so that his estimate is a very reasonable one. Dr. MORRIS, in his address to the Congress held at Barbados in January last, mentioned that "B. 147" produced under favourable circumstances 3½ tons of sugar per acre, the average of the best canes previously cultivated being 2.55 tons, or an increase of 37 per cent. This case is an interesting one, as showing the value of experimental gardens under trained supervision. We do not know if any observations have been made as to the relative production of sugar in different parts of the same cane, near the rootstock, or elsewhere.

MACROZAMIA MOOREI.—That cattle should browse on the hard leaves of the Cycads seems to indicate a lack of more juicy pabulum. Mr. J. F. BAILEY, in the *Queensland Agricultural Journal*, not only demonstrates that the plant is eaten, but that the consequences are very serious, entailing, as they do, the death of the cattle.

OBSERVATIONS OF INJURIOUS INSECTS, 1899.—The twenty-third report from the pen of Miss ORMEROD has been issued, and may be had from SIMPKIN, MARSHALL & Co. The mode of infestation of the Currant-bud mite is still a matter of enquiry.

INCANDESCENT GASLIGHT AND PLANT GROWTH.—The *Bulletin* of the West Virginia Agricultural Experiment Station for October last contains a full account of Mr. L. C. CORBETT's experiments on the growth of plants subjected to incandescent gas. The following conclusions are arrived at:—

1. The incandescent gaslight of the Welsbach burner is an active stimulus to plant growth when used at night to supplement daylight.
2. Lettuce-plants subjected to the influence of the incandescent gaslight at night were taller and heavier than plants of the same variety and seed-sowing grown in normal conditions.
3. That Lettuce and Spinach subjected to the stimulating influence of the light grew faster and completed their growth in less time than plants of the same sorts from the same seed-sowing grown in normal conditions.
4. That no injurious effects resulted from the use of the incandescent gaslight.
5. That the stimulating influence of the light as indicated by the growth of plants used in the

various tests is shown by the order in which the sorts are named, the first being the most susceptible—Spinach, Cabbage, Radish, Lettuce, Tomato.

6. That the range of the light is somewhat variable for the different crops. In general the maximum growth was attained at 12 to 16 feet from the light, while a perceptible increase was noticed at 24 feet.

7. Bloom record of Tomatoes shows markedly earlier bloom in the light house—eight days the least and eighteen days the greatest difference.

8. That in the case of Radishes, top growth was stimulated but evidently not markedly at the expense of root. With sugar Beets top growth was greatly stimulated evidently at the expense of root growth.

9. That while the roots of Beets grown in the normal house were larger than those in the light house, the sugar contents and the per cent. purity was markedly higher in the light house grown roots.

10. Spinach, Lettuce and Radishes all tend to make seed-stalks earlier under the light than in normal conditions.

11. Lettuce and Spinach under the influence of the incandescent gaslight not only grew faster during the growing period, but the period was actually longer than for plants in the normal house.

CALCUTTA HORTICULTURISTS.—The last number of *Indian Gardening* (which we are glad to see improving as it grows in years, contains portraits of well-known Calcutta horticulturists. Mr. A. J. B. GISSELEIRE, superintendent of the Agri-Horticultural Society's Gardens at Alipur. He is a Belgian. After studying horticulture in his native country, where gardening is practised as a fine art, he came to England and joined the well-known firm of F. SANDER & Co., the St. Albans nurserymen. From there he went to the Royal Gardens, Kew, and thereafter came out to India, having been sent out by Messrs. SANDER in search of the lost Orchid, *Cypripedium Faircanum*, in the Khasi and Jaintia Hills, in Assam. His adventures in those wild regions, while in absolute ignorance of the languages of the country, would fill a volume. However, he found the natural habitat of several Orchids, among them *Cypripedium Spicerianum*, and returned to Calcutta more dead than alive, having contracted the terrible "Kala-Azar" of Assam. After his recovery he joined the Agri-Horticultural Society of India as superintendent of the gardens, where he has been since 1896, and which he has done so much to improve. Mr. G. T. LANE, F.R.H.S., Curator of the Royal Botanic Gardens, Calcutta, began his career as a gardener at Frampton Court, in Dorsetshire, the residence of A. B. SHERIDAN, Esq. From there he went to Sherborne Castle, also in Dorsetshire, the seat of J. K. D. W. DIGBY, Esq., where the late Mr. W. PRAGNELL was gardener. From there Mr. LANE went to Messrs. JAMES VEITCH & Sons of Chelsea, and then he obtained an appointment with Colonel LOCKWOOD, M.P., at Bishop's Hall, in Essex. He left that place early in 1889 and entered the Royal Gardens, Kew, and in 1891 he was selected to fill the post of Assistant-Curator at the Royal Botanic Gardens, Calcutta. Five years later he was appointed Curator by Sir GEORGE KING. Mr. H. ST. JOHN JACKSON, F.L.S., F.R.H.S., editor and proprietor of *Indian Gardening*, of whom, from editorial modesty, nothing is recorded. Mr. S. P. CHATTERJEE, F.R.H.S., is the well-known nurseryman and florist of Calcutta. He commenced business in a small way in 1876, which he has built up to its present position by hard work and much travel in many lands. Mr. A. E. P. GRIESEN, Assistant-Curator of the Royal Botanic Gardens, Calcutta, commenced his gardening career in 1888 in the great nursery of M. E. DELAHAYE, of Paris, the well-known Parisian floral decorator. In 1890 he visited the principal horticultural gardens, &c., in Switzerland. He next went to

M. AUDUGE's nursery at Montreuil. In 1892 he entered M. DUVAL's nursery at Versailles, where he was placed in charge of the propagating department. He left after three years, and went to England, entering DROST'S Nursery at Richmond. In June, 1896, he entered the Royal Gardens, Kew, and became Orchid-grower there the same year. In November, 1898, he was selected by the Kew authorities for service in India, and landed in Calcutta in January, 1899. He is the author of pamphlets on *Ericas*, *Bromeliaceae*, and *Orchids*, and is the winner of several medals for his contributions on horticultural literature.

A VERY LARGE PLANT OF COELOGYNE CRISTATA.—At Hatton Park there exists a plant of the above species which measures 5 feet in diameter, and Mr. BAXTER is very proud to be the possessor of such a grand example. He would be interested to hear if there exists in this country another plant of *Coeogyne cristata* as large?

EXPERIMENTAL GARDEN, DROITWICH.—The fourth report of this garden, which is only 2 acres in extent, is an interesting record of what may be done. No fewer than 1809 people visited the garden in 1897. The months of June, July, August, and September, are the best for the general visitor to the garden; but the real student of horticulture will find something instructive and interesting at all times—planting and pruning, root-pruning, manuring and liming, trenching and digging, sowing seeds and transplanting, thinning and weeding, budding and grafting, making cuttings, spraying and grease-banding, and the usual details of cultivation in their season. A careful record is kept of the different varieties of Apple grown, their mode of growth, date, and amount of pruning, date of flowering, gathering of fruit, its weight and quality. Similar records with the requisite modifications are given in the case of Plums, Pears, Strawberries, Potatoes, and Peas. It is satisfactory to see that at last spraying experiments are being carried out systematically.

DECORATIONS ON THE OCCASION OF THE QUEEN'S VISIT TO WOOLWICH.—The floral decorations on the occasion of the visit of HER MAJESTY the QUEEN to the Herbert Hospital, Woolwich, were, as we learn, carried out by Messrs. B. MALLER & SONS, nurserymen, of Lee and Lewisham, who also supplied the bouquet of Orchids and Lily of the Valley presented to the QUEEN by the daughter of Lieut.-Colonel N. J. BOURKE.

JAPANESE ARBORICULTURE.—The miniature but aged trees reared with such pains by the Japanese florists, are sometimes seen at exhibitions in England, and there is a group of them at Kew. These little plants can now be obtained in London from Mr. EIDA, of 5, Conduit Street, and of Newburgh Road, Acton. The specimens at present on view include tiny fruit-trees covered with pink blossom; *Pyrus japonica*, with large and scarlet flowers; and Maples with ruddy and much cut foliage. Both the London depot and the Acton nursery are well worth a visit from those interested in these curious plants, in which, in some cases, as we have already recorded, the dwarfness is hereditary, and no pinching or torturing necessary to produce it.

A NEW RECREATION GROUND.—We are informed that the purchase of the Alexandra Palace and grounds is now practically assured. The £60,000 voted by the Hornsey and Wood Green Councils will, it is stated, be supplemented by £40,000 from the Middlesex County Council, and Finchley and Barnet may help to raise the remaining £10,000 required, and the Vestry of Islington and the London County Council will most likely add their mites. The question as to how best to utilise the estate would soon be settled.

MR. WILLIAM CARRUTHERS.—The Thomson Lecturer of the Aberdeen Free Church College for next year will be Mr. WILLIAM CARRUTHERS, F.L.S., F.R.S., late Keeper of the Botanical Department of the British Museum, whose subject will be "The Adaptation of Plant Life to its Environment." Mr. CARRUTHERS, it may be mentioned, was the Thomson Lecturer at the Free Church College a few years ago, when his lectures were highly appreciated.

"WHO'S WHO AT THE WAR."—Messrs. ADAM & CHARLES BLACK, of Soho Square, have published under this title the names of the leading officers taking part—or, alas! who have taken part—in the South African War. The list of the several regiments, together with the localities at which they are stationed, is interesting, as showing not only the magnitude of the force now in Africa, but also the world-wide distribution of troops not at the seat of war.

THE SWEET PEA BI-CENTENARY CELEBRATION.—At a meeting held at the Hotel Windsor, on Friday, 23rd inst., the executive committee reported that the actual income up to the date of meeting was about £250, including subscriptions and special prizes. Letters from several continental and American gentlemen were read, and in each case the writer expressed his sympathy with, and interest in, the movement, and his intention of being present at the celebration. Mr. N. N. SHERWOOD's generous offer to place at the service of the committee, for the purposes of classification, the immense trial of Sweet Peas his firm (Messrs. HURST & SONS) are this season conducting at Kelvedon, was unanimously accepted, and Mr. SHERWOOD's thoughtful generosity in this matter was heartily applauded.

FIMBRIATED CYCLAMENS.—The remarkable strain of *Cyclamens* with fimbriated foliage as well as flowers, shown by the St. George's Nursery Company at the Drill Hall, on Tuesday, met with a very mixed reception. It was amusing, if not instructive, to listen to the extremely opposite opinions expressed in regard to them by visitors. Such adjectives as "exquisite," "worthless," "curious," "rubbishy," and similar ones were freely used by persons taking different points of view. The ladies were least grudging of appreciation of these novel plants, but all agreed that they were exceptionally remarkable; whilst to the few who study plants as well as see them, they were among the most interesting exhibits of the day.

THE GERMAN IRIS IN MARCH.—Some of the hardy plant specialists who were present at the Drill Hall show this week, were surprised to see plants of *Iris germanica* exhibited in full bloom in pots, and said that they believed it to be not generally known that this *Iris* is capable of being forced with such success. We have knowledge, however, that the practice of hurrying the German *Iris* into bloom, though not general, has existed for half a century. The plants exhibited at the Drill Hall were from a private establishment at Chiswick, and were lifted from the open ground but three weeks ago. We would strongly recommend any who have never flowered this *Iris* in pots, to lift a few clumps at once and pot-up the strongest growths, which will be sure to flower, and place them in a house with an intermediate temperature. The beautiful colour these flower possess will be certain of appreciation during the next six or seven weeks, but in order to have the colour as rich as possible, put the plants in a good light close to the glass, and do not force them immoderately. Given such treatment at an earlier period another year, the plants will bloom successfully in February.

THE TRADERS IN POISONS.—A society has been formed to secure the amendment of the Pharmacy Act of 1868, whereby it may be made legal for traders, other than pharmacists, to sell poisons and poisonous compounds for technical or

trade purposes. The initial meeting was held on December 6, 1899, at Euston Hotel, London, where a number of influential firms were represented, and it was resolved that the existing unsatisfactory conditions of the Pharmacy Act of 1868, whereby poisonous compounds can only be sold legally by chemists, should be ventilated in the agricultural and horticultural and seed trade papers. A second meeting was held on the 6th inst., at Euston Hotel, when it was resolved to extend the sphere of this society to all those trades who are in any way affected by the existing Pharmacy Act, and who would be benefited by an amendment of the said Act to enable them to retail poisons or poisonous compounds for any technical or trade purpose, in original sealed packages, as received from the wholesale dealer or manufacturer. A committee has been nominated, with power to add to their number, who have appointed Mr. G. H. RICHARDS as treasurer, and Messrs. DOBBS & HILL, of Worcester, as legal advisers. Offices and a permanent secretary will be appointed; and to meet expenses it will be necessary to obtain subscriptions from those interested. Among the gentlemen present at the last meeting there were guarantees given amounting to £150, and as expenses will be considerable, it is earnestly hoped that a sum will be subscribed sufficient to carry on the work to a successful issue. Since it is desirable to make the movement popular, the minimum subscription for membership has been made 5s. per annum, or a donation of 10s. 6d. Cheques and post-office orders should be made payable to the order of G. H. RICHARDS, Hon. Sec., *pro tem.*, and crossed "London and County Bank, Lambeth Branch," and forwarded to him at the temporary offices, 128, Southwark Street, London, S.E.

THE BULB GARDEN.

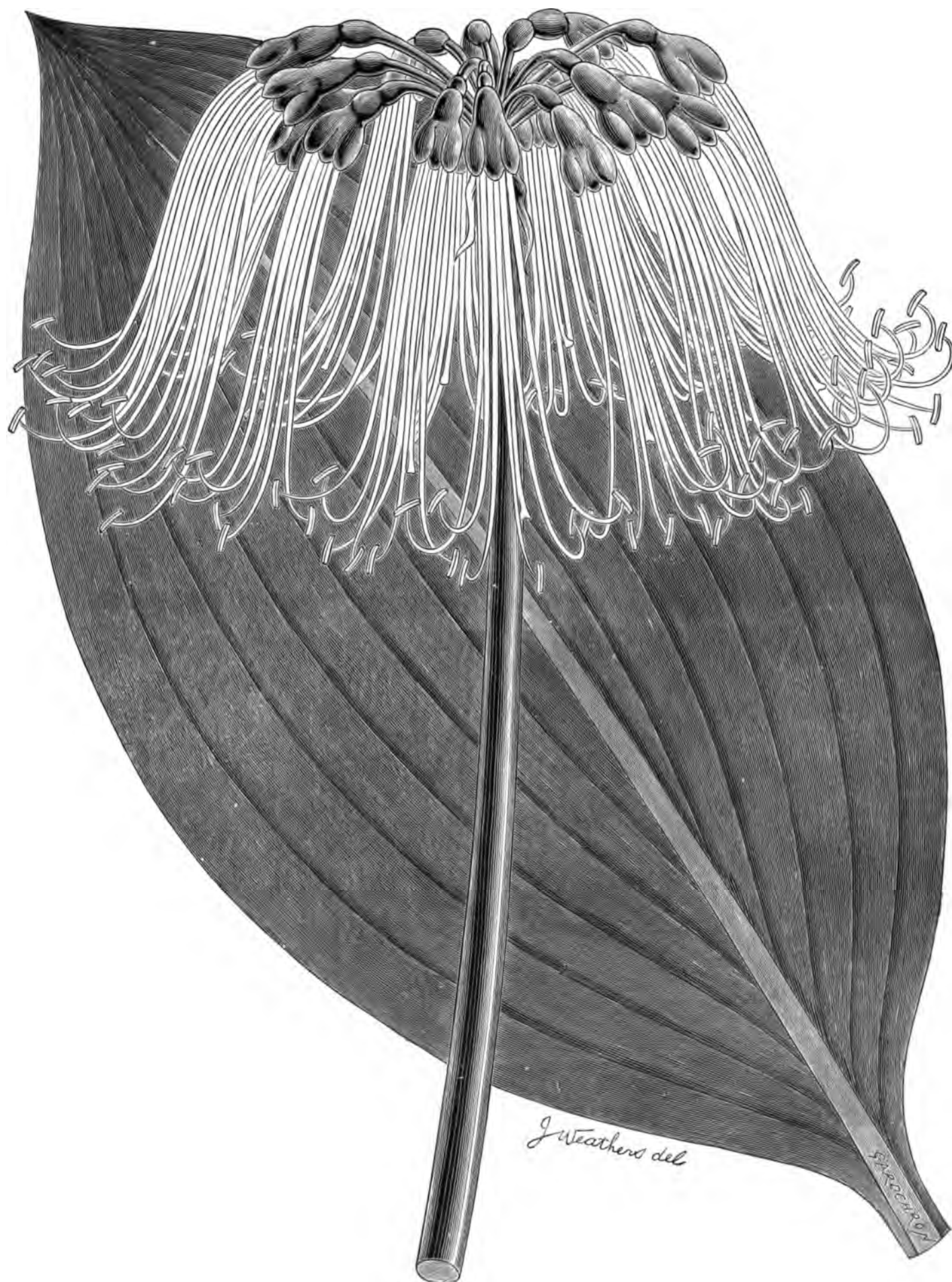
CALLIPSYCHES.

THE genus *Callipsyche* contains three species, of which two only are known to cultivation. They are singular and distinguished-looking bulbous plants, producing umbrella-like inflorescences of which the essential organs, stamens and pistils, form the most interesting part; the perianth being small and comparatively unimportant.

C. mirabilis (see Supplementary Illustration) is the more handsome plant of the two. It produces a pair of oblong, acute leaves with blades a foot long and half a foot wide; the petioles being equally long. The leaves much resemble those of *Eucharis*. The scape, which is produced long after the leaves have died down, is tapering, terete, 2 feet high, and bears an umbel of twenty-one flowers. Each flower consists of a short, greenish-yellow perianth, tubular in outline, and white, declinate stamens and style, each being over 5 inches in length and ascending only at the tips. The whole inflorescence spans 10 inches. *C. mirabilis* is a native of the Peruvian Andes. It flowers in the latter third of the year.

C. aurantiaca (*Bot. Mag.*, t. 6141) has a smaller bulb, and smaller leaves with distinct basal lobes. The scape is 20 inches high, and bears a loose umbel of 7 flowers. The perianth is larger than in the preceding species, being quite 2 inches long, green below, bright yellow above. The stamens and styles are equally 5 inches long. It is a native of the Ecuadorian Andes, occurring at a considerable elevation. These plants are in no way of use to the florist, but they would greatly interest the student of extreme types.

Cultivation.—The bulbs should be potted in a light and lasting compost, starting them in a temperature of 55° to 60° F., affording the growing plants plenty of water until signs of resting appear; exposing them fully to ripen when the leaves have died down. The plants enjoy slight shading from strong sunshine, and a dry resting period similar to that required by *Hippeastrums*. *Geo. B. Mallet, Isleworth.*



CALLIPSYCHE MIRABILIS, FLOWERED IN MR. WORSLEY'S GARDEN, MANDEVILLE HOUSE, ISLEWORTH.
FLOWERS YELLOW.

NOTICES OF BOOKS.

FLOWERS OF THE FIELD. By the late Rev. C. A. Johns, B.A., F.L.S. Twenty-ninth edition; entirely rewritten and revised by G. S. Boulger, F.L.S., F.G.S. (Published under the direction of the General Literature Committee, London; Society for Promoting Christian Knowledge, Northumberland Avenue, W.C.; 43, Queen Victoria Street, E.C.).

It is unnecessary to use many words when writing of this book; the fact of its having passed through many editions being a guarantee of the appreciation with which it has met.

The present issue, revised and enlarged by so competent an authority as is Professor Boulger, cannot even leave the book open to the charge of being old-fashioned, since anything in the earliest edition at all obsolete and likely to mislead a student has been corrected or expunged.

comer may be viewed with doubt. In the present case we are considering a fresh issue of a comparatively old work, and we see with pleasure that in the crowded ranks referred to it takes a high place, being an epitome of accurate information systematically yet not abstrusely set before the reader, who will find that when he tries to name his plants it is easy to "run it down" in the well-classified lists here given, and he will be told about his specimens intelligently, and also intelligibly, and not be deterred by sentences containing inordinately difficult words.

MINNESOTA PLANT LIFE. By Conway Macmillan (published at Saint Paul, Minnesota, by the "University for the people of Minnesota.")

We call attention in the first place to the words which we have placed in inverted commas. They seem to indicate a different conception of the functions and office of a University to what we are

The book is one which we should like to see taken as a model in every English or Scottish county. It comprises an account in the simplest language of representatives of well nigh every group of plants. These are studied in the first instance as they grow in the fields and woods. There is no scamping of this or that group as being too obscure or difficult for beginners, but the whole plant-world, so far as represented in Minnesota, is passed under review. The conditions under which the plants grow, their consequent adaptations and relations to one another, the part they play in the scenery of the country—all these points and others which we cannot enumerate in detail, are handled by one who is evidently a master of his subject and familiar with every district of his State.

The illustrations are good and really illustrative, and there is a good index. We recommend the volume specially to teachers in our schools as one which will afford them an excellent model, to be followed by themselves or their pupils, or it may be used as a text book, provided a sufficient supply of illustrative specimens are available.

CULTURE OF NARCISSUS BLOOMS FOR MARKET SALE.

ALTHOUGH the cultivation of *Narcissus* is carried on most extensively in the isles of Scilly, the industry is by no means confined to those favoured isles, or even to that part of the mainland known as Cornwall, where horticulturists and farmers of late years have been taking leaves from their neighbour's book. In Lincolnshire, Cambridgeshire, and Surrey (as instanced by Mr. WALKER, of Ham Common), and other counties, large quantities of *Narcissus* are grown for the supply of cut flowers to the markets. Our illustration (fig. 65) affords an instance of this near Carlisle, where there is cultivated annually a considerable area of these bulbs by the Orchard Company, Scotby. The variety so freely flowering in our illustration is that known as "ornatus," a good form of the Poet's *Narcissus*. In a few weeks' time the field will, it is hoped, again afford the magnificent display shown by our photograph. It will be seen how very clear is the line dividing those plants in full flower from others the "gatherers" have visited.

MARKET GARDENING.

FICUS ELASTICA.

THE India-rubber plant has long been one of the most popular plants for indoor decoration, and consequently is grown in large quantities for market. When well managed, the species is very profitable to grow. In order to command good prices, the plants must be perfect—that is, they must be furnished with good leaves from the bottom to the top, a single damaged leaf spoiling a plant; and it is essential that the stem should be short-jointed and stout. Large numbers are annually imported from the Continent; but these are rarely equal to the English-grown plants. The variety, too, is slightly different to that usually grown in this country, the leaves being longer, and not so wide. I find plants propagated from the imported stock still retain this difference. It is, perhaps, a matter of taste which is the better, but I prefer the English variety with the broad oval leaves and short-jointed stems.

Where the India-rubber plant is grown in quantity, old plants are kept on purpose of increase. After the cuttings for the current season have been taken, these old plants are well cared for, and induced to make all the growth possible; but previous to making new growth, they should be cleansed by fumigation with tobacco, and the leaves sponged. Towards the autumn, when good growth has been made, they may be kept rather dry and cool, and the first cuttings may be taken at any part of the winter, when they will have become somewhat dor-



FIG. 65.—FIELD OF NARCISSUS ORNATUS, ORCHARD CO., SCOTBY, CARLISLE.

For those who do not know this book, it may be described as being a somewhat bulky work (there are about nine hundred pages in it), on British botany, or on such introductory steps to that science as are calculated to lead the enthusiastic enquirer on to more advanced treatises. In the beginning the most commonly used botanical words and terms are explained, and from these we are led on through all the various orders of plants, with descriptions of the species that represent them.

Flowers of the Field is not a child's book, though young people could use it and understand it; nor is it a companion for country rambles, but rather a guide to aid the collector in naming his specimens on his return.

Mention should be made of the many admirable illustrations, which are not uselessly pretty, as is too often the case in books prepared for amateurs, but clear, and with no tendency to flatter the subjects represented.

There are now-a-days so very many elementary and other unambitious botanical hand-books, most of them based on some pet scheme of the compiler, and arranged in accordance with it, that any new-

accustomed. Our University of London, and the newer universities in some of our large cities, realise the idea far more comprehensively than the older universities which can hardly be called universities for the people. This, however, is only incidental, our main purpose being to call attention to the book. The author thus explains his object:—

"With a minimum of technicalities, sentimentalities, unavoidable inaccuracies, or cumbersome details it [the book] seeks to accomplish the following ends—

1. The plant world is presented as an assemblage of living things.

2. The different kinds of plants in Minnesota from the lowest to the highest are briefly reviewed in their natural order.

3. Some plant structures and behaviours [sic] are elementarily explained as adaptations to surrounding nature.

4. Certain individuals and societies are brought before the reader as having life-problems of their own, not as mere material for economic anatomical or classificatory industry."

mant and the wood fairly firm. The tops will provide the first batch of cuttings, and later on the buds or "eyes." Sometimes an entire stem is cut up, but it is better to take the buds periodically as they begin to start at the base of the leaves. The cuttings may be put singly into small pots in a mixture of sandy loam, with a pinch of sand at the base of the cutting. It is also advisable to apply quite dry sand as soon as they are cut off, both to the stock plant and to the base of the cuttings. A good bottom-heat is more essential than a high surface temperature, and atmospheric moisture must be constantly afforded, but little water to the soil until they begin to root. After rooting has begun it is not long before a shift into 5-inch pots is required. This time good loam, with a liberal addition of manure, may be used in the potting; and when roots permeate the soil, liquid-manure may be freely afforded. The plants may be grown during the early part of the season in stove-heat, and be well exposed to sunlight; but later very little artificial heat is required. I have seen the plants placed out of doors in the summer months, and in sheltered spots it stands well, and the leaves gain a bronzy red tint. Short-jointed wood can only be obtained by giving plenty of light and air, and not crowding the plants. The syringe may be used freely, but too much water at the roots is detrimental to the health of the plants. Plants about 18 inches high, growing in 48's, find the readiest sale, and a fair demand exists for plants of a larger size in 32's, from 2 to 2½ feet high. The introduction of the Kentias has somewhat checked the demand for this useful plant, but it still remains a favourite with many persons. A. H.

A BED OF BOCCONIA CORDATA.

THERE are three species of *Bocconia* met with in our gardens, namely, *B. cordata*, the subject of our present note; *B. frutescens*, and *B. integrifolia*, the best known being *cordata*. The plant possesses large, reflexed, roundish cordate leaves, deeply veined with sinuate margin. The flowers as shown in the woodcut are terminal, numerous, and borne in a large panicle. The flowers being of a very pale buff tint are not showy, but they and the entire plant have a distinct and pleasing appearance.

The plant is perfectly hardy, needing no protection whatever during the winter, and is therefore well adapted for planting singly or in groups on the lawn. Clumps may be moved at this season, and some might be gently forced.

Our illustration (fig. 66, p. 205) shows in what manner it is made use of by Mr. Dixon at Holland House, Kensington, to whom we are indebted for the means of figuring it.

CULTURAL MEMORANDA.

ERIOSTEMON CUSPIDATUS.

THIS species of *Eriostemon* is a capital plant for flowering in February and March, and its cultivation presents no difficulties. In common with some other Australian plants, the plant should be kept, after it has flowered, in a warm, moist house, and its growth is well advanced; and during the latter part of the summer it should be placed in a cold frame to ripen its shoots. The right sort of soil is hard fibrous peat, which should be mixed with a considerable quantity of sharp sand, and the potting should be performed firmly. The proper time to re-pot plants of flowering age is when they have passed out of bloom. In order to have the plants in succession of flowering they should be placed in slightly varying temperatures in the autumn. Propagation is by means of cuttings taken in the spring, and inserting them in 5-in. pots filled with sandy soil. These should be put under a hand-light in a cool pit, potted off singly when rooted, and placed in a cold pit. When grown on from cuttings in this manner, a long time elapses before specimens of a good size are obtained, and it is preferable to purchase some grafted plants from a specialist. H. H. T.



HOME CORRESPONDENCE.

THE ARTILLERY PLANT IN JADOO.—Might I ask whether any of your readers who use Jadoo-fibre have found that *Pilea muscosa* (the Artillery Plant) has sprung up unaccountably in the Jadoo? I have myself seen some most unaccountable instances of it, and am told that it frequently happens. The question is one of considerable interest, for if it does so spring up, it would apparently point to the seed having lain dormant for many thousands of years in the moss deposit from which the supplies are drawn for the manufacture of Jadoo, and that the process gone through has started the germ of life again. *Pilea muscosa* is a native of the West Indies and tropical America, and could not possibly live in the open-air in the northern climate from which the moss comes, so its presence cannot be accounted for by its dropping into the moss after it is dug out. One would have thought, too, that if there were any seed in the moss, it would be destroyed in the long boiling process which Jadoo goes through in the process of manufacture. It has been often said that if a seed has life in it, it is bound to come up in Jadoo; but this goes far beyond mere ordinary germination of seed, if it really is the case. J. Halford Thompson, Eastcliff, Teignmouth, March 26.

APPLE "GABALVA" AT CARDIFF CASTLE.—Calling upon Mr. Pettigrew a few weeks ago, I was again shown this fine late keeping Apple, which recently received an "Award of Merit" from the Royal Horticultural Society, and the excellent qualities of which have long since been recognised in the Castle Gardens. I hope it will soon be placed in commerce now it has made its debut. [The variety is to be distributed by Mr. S. Treseeder, nurseryman, Cardiff, Ed.] Like everything else he takes in hand, Mr. Pettigrew cultivates his Apple trees, does not starve or neglect them, and they are amongst the finest and best grown trees I have ever seen. There are trees 20 feet high and upwards, and as much through. They are furnished from the ground, with clean open branches, and each have fruit spurs from base to extremity, being perfect models of skilful cultivation. The roots are equally well cared for, and each tree is given a good coating of manure, covering the same area as do the branches. Pears are equally good, and both are on the free stock, which is best of all. In the glass-houses, there were the very best one-year-old Pot Vines I have ever seen. They are very strong, hard, and well ripened. Strong healthy Melon plants were much in evidence, and Mr. Pettigrew is an authority on good English grown Melons. Peaches had "set" splendidly. The above are only a few of the good things seen in a hurried visit to the skilfully managed gardens at this historic place. W. Crump, Madresfield Court Gardens.

THE NEW CHISWICK.—As you are good enough to open your columns for practical suggestions as to where the new gardens of the Royal Horticultural Society ought to be, one correspondent (Mr. Gibbs) pluckily proposing its removal to St. Albans, which to northern nurserymen and gardeners would certainly be a boon as compared with Chiswick, would you kindly allow me to improve upon Mr. Gibbs' idea, from my point of view, by suggesting to bring the Society's new gardens on to Bedford. Bedford is more central than St. Albans; it is well served by both the North-Western and Midland Railways, and is situated almost midway between Oxford and Cambridge. In no other town could the new gardens be more centrally situated, or more readily approached from all quarters of England. The town is not only a beautiful one, but one that contains numerous modern improvements. The schools of Bedford are a great attraction. It possesses a park, and the river Ouse near the town broadens out into a fine stretch of water. If the

Royal Horticultural Society means to make its teaching comprehensively useful, it must come further away from London, and give northern nurserymen, gardeners, and garden amateurs, better facility of visiting its gardens. Nurserymen and gardeners in and about London have had, ever since the creation of the gardens, at Chiswick the almost absolute monopoly of its advantages, whilst those who live in the Midlands and farther north and west, have been left out in the cold, with the exception perhaps of a few of larger calibre of both sections. If, unfortunately for us of the north, the new gardens are placed to the south of London, it would not be surprising to see an entirely new Horticultural Society's garden spring into existence for the Midland counties, having Birmingham for its centre, where there are plenty of good men well able to create such a garden. There is excellent *esprit de corps* amongst the gardeners of that locality, and the formation of such a garden might easily be brought about. True, at Bedford the Royal Horticultural Society would have the Duke of Bedford for a neighbour—a horticultural power in himself; but, be it remembered, in Birmingham we should have the no less power of Mr. Chamberlain of Highbury to encourage and to guide us. And, by-the-by, Birmingham offers railway facilities almost equal to London itself. W. Miller, Berkswell, Coventry.

CYPRIPIEDUM BEECHENSE.—At the present time I have a spike of the above-named variety with two fully-expanded flowers, and another bud more than half developed, all on one spike, and from all appearance the bud will be in flower long before the first flower is decayed. The latter has been in flower six months, which I take to be a rare occurrence. G. Stratford, Oakfield, Eden Park, Beckenham.

SAXIFRAGA APICULATA.—My experience of *Saxifraga apiculata* this season is quite in accordance with that of Mr. E. Jenkins. For some time I was afraid that I was not to have the pleasure of seeing its flowers this year, as the earlier promise seemed to be destroyed by the hard weather. Fortunately, however, one's regrets were premature, and the plants are now very pleasing. A small clump in a position which gets no sun in winter entirely escaped injury to its flowers, and is now more profusely covered with them than those planted in full sun, usually the best place for this *Saxifraga*. It is, as a rule, much earlier than *S. sancta*, now in bloom here, and its larger flowers are softer and more attractive in colouring than those. I quite agree with what Mr. Jenkins says about the need of the plant for plenty of moisture in the spring; and even later in the season it is the better for having abundant supplies. While I do not find that the plant needs partial shade, our northerly climate and cooler summers will fully account for the difference of treatment between Mr. Jenkins and myself in this respect. S. Arnott, Carsethorn-by-Dumfries, N.B.

BERBERIS STENOPHYLLA.—In last week's *Gardeners' Chronicle*, Mr. C. Wolley Dod says that *B. stenophylla*, although stated to be a hybrid, was regarded as a species in *Index Kewensis*, and that one of the speakers in the discussion following Mr. Lynch's lecture on "Evolution of Plants" made a point of its being raised freely from seed. If reference had been made to the *Kew Handlist of Trees and Shrubs* it would have been seen that the plant in question is not a species, but a hybrid between *B. empetrifolia* and *B. Darwini*. I may state here that, according to Kew experience, the seeds of *B. stenophylla* ×, although they germinate freely enough, do not come true by any means, but show all sorts of intermediates between the two parents. The raisers too, nearly forty years ago, emphasise the fact that seeds do not come true, and that recourse must be had to cuttings. *B. stenophylla*, of Hance, is a Chinese plant, really nothing more than a form of the Himalayan *B. Walllichiana*. This, of course, is the plant mentioned in *Index Kewensis*. The hybrid, *B. stenophylla*, was raised between the parents already mentioned, by Messrs. Fisher, Holmes & Co., Handsworth, near Sheffield, several years previous to 1865, in which year a coloured plate of the plant was published in the *Floral Magazine*, t. 252. The name which it now bears appears to have been first given in the *Gardeners' Chronicle* for 1864, p. 460, previous to which the plant had been exhibited under the name of *B. Handsworthensis*; an illustration of this hybrid, one of the

most useful and beautiful of hardy evergreens in cultivation, appears in the *Gardeners' Chronicle*, 1880, xiv., p. 213, fig. 41, but strangely enough the name is not given in *Select Index of Plants from 1841-1878*, published in these columns in 1879-80. *Geo. Nicholson, Royal Gardens, Kew*. [All sorts of intermediate conditions between *B. sempetifolia* and *B. Darwini* may be found among seedlings of *B. stenophylla* ×, some almost exactly like one or the other parent, others intermediate. Ed.]

ANEMONE (HEPATICA) ANGULOSA.—I hope "J. C." (p. 189), will take care of his seedlings of *Anemone angulosa* with white and pink flowers. These colours are rare in this species, and the few who possess them prize them highly. A continental nurseryman offered the white and pink forms some time ago, and through the kindness of a reader of the *Gardeners' Chronicle* in Denmark I have the pleasure of possessing a pink variety. I see that

cool chamber is allowed to fall too low, so that some of the Oranges get "frosted." The rinds of these become soft when thawed, and blue mould immediately follows. The cases should be unpacked on arrival, and the fruit sorted and wiped where condensed moisture is apparent. If the damaged fruit be peeled at once, it will be found that the injury is only skin-deep, and that no mouldy or bitter taste has been imparted to it. The Californians certainly lead the way in fruit culture. Their New Town Pippins have adorned the shop-windows in London all the winter, and although not so fine in flavour as the same variety grown on the eastern side of the Continent, they are finer in appearance and keep better. I have no doubt the Californian fruit-growers will eventually give the world seedless Muscat Grapes. Efforts have been made in this direction for some years, and Grape-growers in England would be glad to learn what progress has been made. I wish the fruit-growers of California would export a little of

PRIMULA OBSCURICA.—So much has been said and written about this very useful plant, that it seems scarcely possible to say anything that has not already been said; yet I do not remember to have read in the *Gardeners' Chronicle*, or elsewhere, that it is such a very dangerous plant to some people that they are affected by it in simply passing through and about rooms in which the plant is placed, and who do not actually come into contact with it. Here we use a good many of the plants for furnishing, and a case has occurred of irritation of the skin. A local medical man on being consulted, says it is all due to *Primula obscurica*. The sufferer in question has no reason to touch or handle the plants in any way, his duties take him to all parts of the rooms where the plants are, and the medical man thus accounts for the irritation. I must admit that I am somewhat sceptical on this point, or I should advise my employer, who is an admirer of the plant, to discontinue growing it. Have you, or any of your correspondents, ever heard of a similar case? *George Jones, Chedington Court Gardens*.

OROBANCHE ON PELARGONIUM.—I have pleasure in forwarding to you a specimen of *Orobancha minor*, a variety of Broom-rape, which is parasitic on the roots of *Pelargonium Madame Lemoine*. After carefully removing the soil the attachment is plainly shown. Last year a plant of the same species grew here in a pot containing a plant of *Eupatorium riparium*. No doubt the seeds have been introduced in the potting soil, although I have never seen a plant of any variety of *Orobancha* growing in the park from which the soil was obtained. Can you tell me if such instances are of common occurrence? I have never seen or heard of it before. *W. Trevithick, Gaunt's House Gardens, Wimborne*. [Not very uncommon. Ed.]

VIOLETS.—We grow a considerable lot of these in the open fields—and try all the new ones. It may interest your readers to know that the so-called new sorts *Luxonne* and *Edmond de Terte*, from the continent, are the same as the older *Bourg la Reine*—which is a synonym (or the type) of *Italia* and *Primavera*, all being alike in giving here most blossom in spring—large flowers with white eyes veined a little with purple on the white. We find *Princess of Wales* the best, yet *Amiral Avellan* is of very rich plum colour—add to these "*Welliana*," *Lees odoratissima*, and *California*, and no better can be desired in the single kinds. *George Bunyard & Co., Maidstone*.



FIG. 66.—A BED OF BOCCONIA CORDATA. (SEE P. 204.)

both colours are now offered by an English hardy plant dealer, and that Herr Max Leichtlin includes them in his new list. We have thus every reason to look forward to this *Anemone*, or *Hepatica*, taking a higher place in our gardens. Can "J. C." kindly give me an idea of the nature of the soil in his garden? It might throw some light upon the question of the influence of soil in causing these variations among cultivated plants. *S. Arnott, Carsethorn-by-Dumfries, N.B.*

CALIFORNIAN SEEDLESS ORANGES.—That delicious variety, the "Navel Orange," has a special value for invalids. It is not only entirely free from pipe, but the texture of the fruit is so tender that it may be eaten without the exertion of sucking, and no fibrous material is left for the mouth to reject. When one considers that these Oranges are sent across the continent of North America by rail, and then over the Atlantic by steamer, the wonder is great that they should generally arrive in such good condition. The care with which the Oranges are selected, and the skilful way in which they are packed, reflect the greatest credit upon all concerned in the consignments. The only defect that I have observed is that the temperature in the

their skill and enterprise to this country, especially to the West of England, where they seem to think that the principal use of Apples is to make cider, although the soil and climate are favourable to the production of dessert Apples of the greatest beauty and the highest flavour. *W. Roupell*.

HAIRINESS OF PLANTS.—Prof. Henslow (*Gard. Chron.*, March 24, 1900, p. 188) states that I have called attention in the *Gard. Chron.* recently "to great differences in this feature between various species growing together, and even on different leaves of the same plant." I have carefully copied the sentence, because I do not remember having written anything on this subject in these columns, and the fact that hairy and hairless plants grow in the most intimate association is so well known that I am at loss to realise in what connection I should have thought it worth while making such a statement. I presume Mr. Henslow's remarks must refer to my account of *Mathiola sinuata*, var. *ovensis*, which appears in the *Botanical Magazine*, accompanying plate 7703, and in which I mentioned that hairy and hairless individuals of the same species grow side by side. With regard to Mr. Henslow's theories on this subject, may he not be generalising on insufficient data? *W. Botting Hemslay*.

THE WEATHER IN WEST HERTS.

THE present spell of cold weather has now lasted twelve days, during which there has been only one day which was in any way unseasonably warm. At the beginning of the period, there occurred two very cold nights, but since then the thermometer exposed on the lawn has at no time shown more than 10° of frost. The ground has been getting gradually colder during the past week, and is now about 2° colder at 2 feet deep, and at 1 foot deep nearly 4° colder than is seasonable. There was a little rain on the 21st, and since then there have been several light falls of snow, but never sufficient to quite cover the ground. For over 100 hours during the week the direction of the wind was some point between north and east. These north-easterly winds were, however, of only moderate strength. The week was on the whole rather a sunless one, indeed, for four consecutive days the sun shone for altogether only two and a half hours. *E. M., Berkhamsted, March 27*.

NOVELTIES.

THE TRIPLEX SYRINGE.

MESSRS. BENTON & STONE, of Brazebridge Street, Birmingham, and Charterhouse Street, London, have sent us a triplex syringe, which, though of simple construction, is very efficient. Hold the syringe in one direction indicated on the nozzle, and a single jet is produced. Turn it, and hold it in another position, and a coarse spray is produced. A further turn, and a fine spray results. These effects are produced by simply turning the barrel of the syringe; there are no nozzles to screw on or off. A similar arrangement can be applied to the end of the hose.

SOCIETIES.

ROYAL HORTICULTURAL.

MARCH 27.—Notwithstanding the severely cold winds that continued to prevail at the beginning of the week, there was a most interesting display of exhibits at the fortnightly meeting of this Society, held on Tuesday last.

The Orchid Committee recommended the awards of two First-class Certificates, one to *Dendrobium nobile* album, from GURNEY FOWLER, Esq., and the other to *Dendrobium* × *Melpomene*, from Sir TREVOR LAWRENCE. Also of Awards of Merit to *Dendrobium aggregatum*, from H. T. PITT, Esq.; *D. Clio superbum*, from Sir TREVOR LAWRENCE; *Odontoglossum triumphans* "Raymond Crawshaw," from DE B. CRAWSHAW, Esq.; and to *Ada aurantiaca*, from J. T. BENNETT-POT, Esq.

The FLORAL COMMITTEE was exceptionally well attended, and was called upon to inspect a great variety of exhibits. There were large and unusually interesting exhibits of Cyclamens; a most attractive display of hardy flowering shrubs blooming in pots, shown by several exhibitors; groups of *Azaleas*; and an exhibit of "Colchester Roses," from Messrs. CANT. From Bristol was shown a collection of varieties of Violets, and there were numerous small exhibits that attracted attention. This Committee recommended four Awards of Merit. These were to zonal *Pelargonium*, Miss Ashworth, from Messrs. H. CANNELL & SONS; *Violet La France*, from Messrs. HOUSE & SON; greenhouse *Rhododendron* Dr. Stocker, from Dr. STOCKER; and *Cyclamen fimbriatum* (the strain), from the ST. GEORGE'S NURSERY COMPANY, Hanwell.

There was little for the FRUIT AND VEGETABLE COMMITTEE to do, but they recommended the award of a First-class Certificate in the case of *Rhubarb* Daw's Champion, again shown by Mr. POUFART; and an Award of Merit to the well known *Apple* King of Tomkin's County, shown from the Duke of RICHMOND's garden, at Goodwood.

Nothing has grown much of late in the open garden, and *Narcissus* being late, the *Narcissus* Committee had not a great deal before it, but one new variety was recommended an Award of Merit.

Floral Committee.

Present: W. Marshall, Esq. (Chairman); and Messrs. C. T. Drury, H. B. May, R. Dean, G. Reuthe, W. Howe, Jas. Hudson, Jno. Jennings, J. F. McLeod, Robt. Fife, C. E. Pearson, J. D. Pawle, R. Wilson Ker, C. E. Shea, E. H. Jenkins, E. T. Cook, Harry Turner, Geo. Paul, Geo. Nicholson, Jas. H. Laing, Chas. Jeffries, H. J. Jones, J. W. Barr, and J. Fraser.

Hardy flowering shrubs from Messrs. W. PAUL & SON, Waltham Cross, Herts, were delightful, and nothing was prettier in the group than the several varieties of *Peaches*. These included Double White, *Carnation*-flowered, and *Camellia*-flowered (pink); all of them sufficiently descriptive names to convey an idea of their distinctive characteristics. They are most effective and charming flowering plants. There were also *Cerasus Fortunei*, and the Double French Cherry, *Prunus virgata* rosea, fl.-pl.; double-flowered Almond, *Persica sanguinea*, fl.-pl., *Pyrus Malus floribunda*, and the variety *Scheideckeri*; *Magnolia Soulangiana*, varieties of *Azalea indica*, *Forsythia suspensa*, *Staphylea colchica*, and several charming varieties of *Lilac*, of which the two most noteworthy are *Doyen Keteleer*, double white; and *Belle de Nancy*, also double white, but having decidedly pink-coloured buds, which make a beautiful effect (*Silver-gilt Flora Medal*).

Mr. JNO. RUSSELL, Richmond Nurseries, Surrey, made an exhibit of hardy flowering shrubs which have been forced into flower in pots. At the back of the group were white and red-flowered forms of *Pyrus Malus floribunda* and tree *Lilacs*, some 4 feet high. Of the latter, a white-flowered variety, *Marie le Gray*, and a very pale purple one named *Charles X.*, were pretty. *Viburnum Opulus* and *V. plicatum*, *Azalea mollis*, *Staphylea colchica*, &c., were included in the group (*Silver Flora Medal*).

Messrs. R. & G. CUTHBERT, Southgate Nurseries, Middlesex, exhibited seven very large specimen plants of *Azalea indica* var. *Fielder's White*, a valuable single-flowering variety, with pale lemon tint on upper petal, and the flowers possess unusual substance for an *Azalea* (*Bronze Banksian Medal*).

Messrs. J. FEED & SON, West Norwood, London, S.E., showed a group of greenhouse plants in and out of flower.

Some very beautiful Roses were shown by Messrs. F. CANT & CO., Braiswick Nurseries, Colchester, a centre box being filled with richly-tinted buds of the popular William Allen Richardson. Here were also well represented such varieties as *Perle des Jardins*, *Madame De Watteville*, *Catherine Mermet*, *The Bride*, *Niphotos*, *Bridesmaid*, *Clara Watson*, &c. (*Bronze Banksian Medal*).

The exceedingly pretty *Acacia*, *A. Ricans*, was shown by Dr. STOCKER, Avery Hill, Eltham (gr. Mr. G. Abbey). The sprays were about 4 feet in length, and splendidly flowered.

Two new *Carnations* were shown. One known as *H. J. Jones* is of the *Malmaison* type, and was shown by Mr. JONES, Ryecliff Nursery, Hither Green, Lewisham. The flowers are deep velvety-crimson, like those of *Uriah Pike*, and very distinct in this respect from any *Malmaison* variety we have noticed previously. The other variety, *Hypatia*, a very

good red tree variety, was shown by HAYWARD MATHIAS, Esq., Thames Ditton.

A variety of *Clivia* named *Empress*, was shown by Mr. R. B. LEECH, Wood Hall Gardens, Dulwich. The flowers were of good form and colour.

A group of *Clivia* miniaturum and seedling varieties were shown by Messrs. JAS. VEITCH & SONS, Ltd., Royal Exotic Nurseries, King's Road, Chelsea. The plants bore a fine lot of flowers (*Silver Banksian Medal*).

Messrs. J. VEITCH & SONS, also showed a variety of *Deutzia Lemounei*, named *Boule de Neige*, and about a dozen fine plants in flower of *Viburnum Tinus lucidum*, a variety of the *Viburnum* with thicker and more shiny leaves than the type, as well as much superior flowers (*Silver Banksian Medal*).

Some fine *Hippeastrums* were shown by J. A. KENRICK, Esq., Berrow Court, Edgbaston (gr. Mr. A. Cryer). Plants and cut blooms were contributed, and the varieties were remarkable for their large flowers—rather than good markings or novel form.

Messrs. F. SANDER & CO., St. Albans, showed plants of a pretty *Pteris*, named *argentea*. The fronds become very pale green, or grey colour, and in other respects, the plants exhibited appeared to be identical with *P. tremula*. The firm also exhibited a plant of *Dracena albanensis* in flower, a broad leaved variety, green, with yellow centre in leaves.

Messrs. WALLACE & CO., Kilnfield Gardens, Colchester, showed in a basket some clumps of *Hepatica corymbosa*, sWaley Blue, an intensely-coloured variety; also *Iris stylosa speciosa*, of deeper colour, and greatly superior to the type; *Iris sindjariensis*, a rather prim-looking, but very delicately-tinted *Iris*; *Chionodoxa gigantea*, with very large, rather pale-coloured flowers; and *Tulipa Kaufmanniana*, a brightly-coloured and pretty *Tulip*.

Iris germanica is not frequently seen in bloom in March, but two potfuls were shown by J. T. THORNTON, Esq., Eyot Villa, Chiswick Mall (gr. Mr. F. Meers). Strong growths had been potted-up about three weeks ago, and were shown abundantly in bloom, of capital colour, and bearing no evidence of having been forced.

Messrs. ISAAC HOUSE & SON, Westbury-on-Trym, Bristol, showed a collection of species and varieties of Violets, including upwards of a dozen kinds. We noticed *Sulphurea*, yellow; *Coolcroonan*, a new double variety, raised in Ireland, resembling *Lady Hume Campbell*, but described as much more free in flowering; *Princesse de Sumonte*, an Italian novelty, with flowers marked violet upon a white ground, very fragrant; *Augustine*, an intensely-coloured, small variety, suitable for rockeries; *La France*, as large as a *Viola*, deep purple colour; and several well-known varieties.

Flowers of a green *Helleborus* were shown by Mr. C. SPRINGHAM, Big-Snap, Island-on-Wye, Chepstow.

Chionodoxa Lucilia is a very well-known early-flowering bulb, and a pure white variety of this was shown by Mr. F. W. MOORE, Royal Botanic Gardens, Glasnevin. Some time since an Award of Merit was recommended this white "Glory of the Snow."

Mr. H. J. JONES, Ryecliff Nursery, Hither Green, Lewisham, showed an exhibit of *Tulips* in pots in great variety. Among the newer varieties were *Queen of the Netherlands*, a very delicate pink-coloured flower; *Grace Darling*, bright red; *Lord Derby*, white; and *Pink Beauty*, all of them being very pretty, desirable *Tulips*.

Cyclamens were capitally shown by the ST. GEORGE'S NURSERY COMPANY, Hanwell. Their group covered three parts the length of one of the long tables, and the major portion consisted of plants representative of a very valuable strain of the florist's *Cyclamen*. Whether for substance or size of flower, or for brilliance and distinctiveness in colour, the plants were equally remarkable; and the cultivation afforded them had evidently been of the best. A considerable number of plants represented a new strain with fimbriated leaves—but this is referred to under Awards. A *Silver-gilt Banksian Medal* was awarded the group.

Another display of *Cyclamens*, and one that is worthy of appreciative remark, was shown by Mr. JOHN MAY, Gordon Nursery, St. Margaret's, Twickenham, and a *Silver Banksian Medal* was awarded to it.

Messrs. CUTBUSH & SON, Highgate Nurseries, London, N., showed a group of forced hardy plants, such as *Laburnums*, *Magnolias*, double-flowered white and red *Thorn*, *Staphylea colchica*, *Viburnum Tinus hirta*, &c.

Hardy perennial plants in flower in pots were shown by Mr. THOS. S. WARE, Ltd., Hale Farm Nurseries, Tottenham, and Messrs. BARR & SONS, King Street, Covent Garden, London. The larger collection came from Mr. WARE, and included *Anemone blanda*, *Narcissus* in some variety, hardy *Cyclamens*, *Saxifrages*, *Chionodoxas*, &c. Messrs. BARR staged but few plants other than *Narcissus*, but *Chionodoxa Lucilia*, *sardensis* and *gigantea* were effectively grouped, that each could be conveniently compared with the other.

Mr. R. SYDENHAM showed some *Narcissus* in bloom in pretty vases, containing only Cocoa-nut fibre and broken shell, without drainage (Vote of Thanks).

Awards.

Cyclamen fimbriatum.—An Award of Merit was recommended in respect to a strain of fimbriated *Cyclamens*, shown by the ST. GEORGE'S NURSERY COMPANY, Hanwell. This is a very remarkable strain, and gave rise to considerable discussion throughout the day. It is quite distinct from any strain or plant we have seen previously, owing to the fact that the fimbriation which has already been noticed in *Cyclamen* flowers, has been obtained in the foliage also. We are informed that the strain has been developed by the firm without any crossing with other strains, but those which have originated in their establishment. Nevertheless, many of the plants have flowers

similar to those seen in the "Papilio" strain that originated in Belgium. The foliage, however, is altogether different, being fimbriated, notched and lobed all round the margins in greatly varying degree and manner. The plants are exceedingly interesting and worthy of note, but whether such a strain will become popular time must show.

Pelargonium Miss G. Ashworth.—A double white-flowered zonal variety of unusually free-flowering habit. The white is very pure, and the bright orange-coloured anthers make a pretty contrast. From Messrs. H. CANNELL AND SONS, Swanley Kent (Award of Merit).

Rhododendron Dr. Stocker.—A very large-flowered greenhouse *Rhododendron*, white, with faint tint of lemon, and a few reddish-brown markings upon the lower petal. The flowers were 5 inches across, and had but little if any scent. From Dr. STOCKER, Avery Hill, Eltham (gr. Mr. G. Abbey) (Award of Merit).

Violet La France.—An exceptionally large-flowered variety with blue, moderately scented blossoms. It is stated to be much more free flowering in habit than the pot plant placed before the Committee. From Messrs. I. HOUSE & SON, Westbury-on-Trym (Award of Merit).

Orchid Committee.

Present: J. Gurney Fowler, Esq., in the Chair; and Messrs. H. J. Chapman, J. Colman, H. T. Pitt, W. H. Young, A. Hialop, E. Hill, J. Jacques, W. H. White, H. A. Tracy, J. W. Potter, H. Little, T. W. Bond, and de B. Crawshaw.

Messrs. HUGH LOW & CO., Bush Hill Park, Enfield, exhibited a choice, if small, collection of Orchids, of which varieties of *Cattleya Schroderae* formed a conspicuous portion. A deviation in the colouring of this species was remarked in one plant, where the orange colour in the throat faintly appeared as a median suffusion on the petals. Similar markings are observed in *Dendrobium nobile Cooksoni*, likewise shown in this collection. Other exhibits consisted of *Dendrobium barbatulum*, with its pretty spikes of white flowers; *Cymbidium eburneum*, *Odontoglossum Andersonianum*, *Dendrobium Findlayianum*, *D. atroviolaceum*, *Oncidium verrucosum* Rogersii, and *Dendrobium Wardianum cinnamomeum* (*Silver Banksian Medal*).

H. T. PITT, Esq., Roselyn, Stamford Hill (gr. Mr. Thurgood), showed Orchids rather extensively, and among them we noted forms of *Miltonia vexillaria*, of *Dendrobiums*, including *D. splendidissimum* with a rich-coloured lip; *D. nobile*, some of which raised from seed showed pretty colouring; *Odontoglossum Rosali*, *Epidendrum Endresii* Wallisi, *Spathoglottis aureo-Viellardi*, with two blooms of different tints indicative of their age; *Vanda tricolor*, various *Cypripediums*, *Odontoglossum Hunnevellianum*, a flower with ground colour of a yellow shade, densely spotted with brown; *Laelia harpophylla*, *Cattleya Trianae* Roselyn var., almost an albino, &c. (*Silver Flora Medal*).

Messrs. F. SANDER & CO., Nurseries, St. Albans, showed a small group in which were remarked some very fine forms of *Odontoglossum crispum*, both white and rose-coloured types. Besides these, the principal features were the rare *Oncidium Waltoni*, a plant with one good spike of flowers; *Cirrhopetalum picturatum*, *Bulbophyllum aureo-cephalum*, with flowers not expanded; *Cypripedium Svend Brunn*—C. Lowi × C. Curtisii, a variety with a spike having a stalk 2 feet high, surmounted by three flowers, the sepals and lip of which are rose-crimson, and the dorsal sepal light green running out to white at the edges, and marked with faint, yet distinct, purplish lines running from base to apex. The petals are semi-drooping, and possess dark purple spotting on their upper half. The firm showed a plant of *Selenipedium titanum*, with an enormously strong flower stalk, and long, broad, green leaves; also *Phaius Bernayli*, with yellow flowers, the reverse of the segments being white (*Silver Banksian Medal*).

N. G. TAWAITS, Esq., Chessington, 23, Church Road, Streatham (gr. J. M. Black), showed a small number of *Dendrobiums* in small examples. We remarked *D. Wiganæ*, *D. nobile Cooksoni*, a nicely flowered plant, 2 feet in diameter; a plant of *D. Ainsworthi intertextum grandiflorum*, with three blooms, the tints of which are creamy white, the lip with deep crimson blotch at the base.

Sir TREVOR LAWRENCE, Bart., Burford Lodge, Dorking (gr. Mr. White), showed *Laelia Cowani*, whose flowers are of a rich yellow, disposed on a semi-pendent spike. The remainder of the President's exhibits are mentioned in the list of awards.

Sir F. WIGAN, Bart., Clare Lawn, East Sheen (gr. Mr. W. H. Young), showed among other plants *Maedevallia Pourbaixi*, with six of its rich orange-red flowers; *Cattleya Trianae* Mars, of bright purple tints, and a lip tipped with rich purple—a showy flower.

H. T. PITT, Esq., Roselyn (gr. Mr. Thurgood), showed a new species of *Epidendrum*.

DE B. CRAWSHAW, Esq., Rosefield, Sevenoaks, showed *Odontoglossum Andersonianum pubescens*, obtained from O. flavum × O. album, the ground tint of which is pale yellow, covered, as regards the basal half of the segments, with dotting of a red tint. The same exhibitor showed *Odontoglossum triumphans Imperator*, a flower with much brown blotching on the yellow ground; O. t. Mrs. DE B. CRAWSHAW, O. mulus Crawshawianum, and O. excellens Crawshawianum.

Messrs. JAMES VEITCH & SONS, Royal Exotic Nurseries, King's Road, Chelsea, showed a plant of *Cypripedium hirsutissimum* Argus, the flowers of which have a pleasant form, and markings; the semi-drooping petals one half green, and half light purple, and the basal half densely spotted with black; the dorsal sepal is greenish, and marked with converging lines of a dark colour; foliage marbled.

Mr. A. J. KEELING, High View Nursery, Cottingley, Bingley, showed three forms of *Laelia Joughiana*.

List of Awards.

FIRST-CLASS CERTIFICATES.

Dendrobium Melpomene (Hort.).—Shown by Sir Trevor Lawrence, Bart., Burford Lodge, Dorking (gr., Mr. W. H. White). This very handsome variety was obtained by crossing *D. signatum* and *D. splendissimum*. The flower possesses sepals and petals of a very pale primrose tint, and the tube is marked with a purple blotch. The plant was a young one still; the flower-spoke measured 1 foot in height.

Dendrobium nobile album.—Shown by G. FOWLER, Glebelands, South Woodford (gr., Mr. J. Davis). The plant was a small one, and the flowers were pure white disposed on a pseudo-bulb 1 foot in length. A pleasing variety.

AWARDS OF MERIT.

Ada aurantiaca was shown as a well flowered specimen by J. T. BENNETT-POLL (gr., Mr. J. Downes).

Dendrobium Clio superbum.—Shown by Sir Trevor Lawrence, Bart. The variety is a beautiful one, with white flowers, tipped as regards the sepals and petals with purple, and the throat having internally a deep, purple-coloured patch, which possesses a yellow margin.

Cattleya Trianae var. *Katie Wigam*, shown by Sir F. WIGAM, Bart., Clare Lawn, East Lawn (gr., Mr. W. H. Young).—The chief features are the clear, rosy-purple lip and tube.

Odontoglossum triumphans var. *Raymond Crawshaw*, shown by Dr. B. CRAWSHAW, Esq., Rosethfield, Sevenoaks.—A yellow ground flower, with big, bold patches of brown, the area of the blotches larger than that of the ground colour.

Dendrobium aggregatum.—Shown by H. T. PITT, Esq., Rosalyn, Stamford Hill; a beautifully flowered specimen of this lovely orange and yellow species.

Narcissus Committee.

Present: Rev. G. H. Engleheart, Chairman; S. E. Bourne, Miss Willmott, Messrs. J. Pope, W. Goldring, W. Ware, W. Poupard, R. Sydenham, G. Titheradge, A. Kingmill, J. Pearson, P. R. Barr, J. Walker, and C. Scrase-Dickens.

Two novelties only came to the table, on account of the lateness of the season. A vote of thanks was accorded to a large yellow Ajax, with a remarkably wide and frilled crown, "Souvenir," from Messrs. W. MANGER & SON, Guernsey. Mrs. R. O. BACKHOUSE, Sutton Court, Herefordshire, received an Award of Merit for a distinct and pretty little hybrid between "Tenby" and *N. cyclamineus*. Similar flowers from the same cross have been shown and figured from the gardens of the Rev. G. H. Engleheart and C. Wolley Dod. Messrs. BARR & SONS deservedly gained a Silver Flora Medal for a remarkably fresh and varied stage of *Narcissus*. The new large form, *Stella superba* was well represented, and a quantity of C. J. Backhouse was vividly coloured.

A Vote of Thanks was given to Mr. R. Sydenham for a small exhibit of a specialty of his *Daffodils*, grown in china vases and bowls, without drainage. The mode of culture seems to suit these plants well, and is convenient for room and table decoration.

Fruit and Vegetable Committee.

Present: Philip Crowley, Esq. (Chairman); and Messrs. W. Wilks, Jas. H. Veitch, Jos. Cheal, Geo. Kelf, Alex. Dean, S. Mortimer, W. Bates, W. Farr, Geo. Wythes, H. Balderson, F. Q. Lane, Jas. Smith, Geo. Reynolds, E. Beckett, J. Willard, Geo. Bunyard, and H. Somers Rivers.

From the Duke of Richmond and Gordon's garden at Goodwood, Chichester (gr., Mr. R. Parker), were shown fruits of several well known Apples, as Norfolk Seedling Court Pendu Plat, Sturmer Pippin, French Crab, Brownlee's Russet, Dumelow's Seedling, Lemon Pippin, Lane's Prince Albert, and King of Tomkin's County.

Awards.

Apple King of Tomkins County.—A well known large and late dessert Apple of American origin, extremely popular with many Kent fruit growers; also in Monmouthshire and several of the western counties. From Mr. Parker, gr. to the Duke of Richmond and Gordon, Goodwood, near Chichester (Award of Merit).

Rhubarb Daw's Champion.—This variety was recommended an Award of Merit at the meeting held on the 18th inst., when forced specimens were shown. Naturally-grown stems were now placed before the Committee, and specimens for comparison of Hawke's Champagne, Albert, Linnaeus, and Victoria. Daw's Champion was altogether earlier, stronger, and better coloured than the others, the stems of this being more than 7 inches long. The latest variety was Victoria, the crowns of which had scarcely burst. From Mr. W. POUFART, Marsh Farm, Twickenham (First-class Certificate).

LINNEAN.

MARCH 15.—Mr. G. M. Murray, F.R.S., in the Chair. Prof. Farmer, F.L.S., exhibited (as lantern-slides) several photographs of dissections of flowers, and made remarks on the utility of such illustrations for teaching purposes. His views were supported by Mr. J. C. Shenstone.

Mr. R. A. Rolfe, A.L.S., exhibited specimens and drawings of *Paphiopedilum*, both of species and hybrids, with their capsules, to illustrate remarks on the hybridisation of Orchids. Additional observations were made by Mr. A. O. Walker, Dr. Rendle, and Prof. Farmer.

Mr. I. H. Burkill, F.L.S., gave an abstract of a Report on the "Botanical Results of an Expedition to Mt. Roraima, in British Guiana," undertaken in 1898 by Messrs. F. V. McConnell and J. J. Quelch. The same travellers had made a previous journey of shorter duration to Mt. Roraima in 1894, a narrative of which had appeared in the *Journal Timehri*, edited by Mr. Quelch, at Georgetown. During the second expedition in 1898, nine days were spent in collecting on the summit.

Acknowledged authorities on plant-geography had considered it probable that the vegetation of the summit of Mt. Roraima when better known would compare well with that on the Paramos of Venezuela; but this was not the case. The characteristics of the treeless Paramos were absent from Roraima; and *Bonnetia Roraimae*—the commonest of species on the summit—attained, where sheltered, a height of 40 feet. Lower than the Paramos on the slopes of the Andes was the *Bofaria* zone, and to this the upper flora of the mountain was to be ascribed; the rest of the vegetation being of a Brazilian type. Many of the plants collected were of anatomical interest; the huge mucilage-cells of the leaf of *Bonnetia Roraimae*, and the quaint pitchers of some of the *Utricularie* were especially noteworthy.

The complex chain of mountains to which Roraima belongs includes other peaks of similar height, such as Duida over the Upper Orinoco; but in this direction the chain terminates with the low-lying forests of the Casiquiare, which has barred immigration from the higher Andes.

The additions to botanical knowledge now made by Messrs. McConnell and Quelch might be said to emphasize the remarkable similarity which had been found to exist in the floras of Roraima and the Kaeteur Savannah.

In illustration of his remarks, Mr. Burkill exhibited some of the more remarkable plants collected, and lantern-slides from photographs taken in the course of the expedition, showing the nature of the country explored.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

MARCH 22.—There was an unusually good display of Orchids on the above date.

A magnificent group, composed principally of varieties of *Dendrobium Wardianum* came from the collection of O. O. WATKINS, Esq., Bury (gr., Mr. Rogers). Not only were the plants full of bloom, but each was a model of a perfectly-grown specimen. In respect to one plant in particular, the committee awarded a Cultural Commendation, and a Silver-gilt Medal was given for the group.

Messrs. JAS. VEITCH & SONS, Ltd., Chelsea, had a small group of choice hybrids, the best of which were *Laelio-Cattleya* × *Dominiana* var. *Langleyensis*, a fine flower, of good form and rich colouring, the labellum being very rich dark velvety-crimson (First-class Certificate); *L.-C.* × *Ibera*, *L. clunabarina* × *L.-C.* × *Bella* (which gained an Award of Merit), and *Cypripedium* × *Leonidas* (*C. Leeanum* × *C. villosum*) (Award of Merit). *Dendrobium* × *Imogene*, seen here for the first time, is a cross between *D. euosmum leucotermum* × *D. signatum*, and bore, for a small plant, a large panicle of flowers, arranged on the spike in a similar manner to those of *D. Hillii*; the flowers are of medium size, and pale yellow throughout (Silver Medal).

J. LEMANN, Esq., West Bank House, Heaton Mersey (gr., Mr. Edge), staged a group of Orchids, and several very choice plants were awarded Certificates. *Laelio-Cattleya* × *Ernesti* var. *Lord Roberts*, is a charming hybrid between *C. Percivaliana* × *L. flava*. This, and another variety of the same hybrid, and named *Baden-Powell*, received First-class Certificates. Other plants in this group included *Laelia* × *Callistoglossa* (Award of Merit), *Cattleya Trianae* var. *Emperor* (Award of Merit), a very nice form of *Laelio-Cattleya* × *Highburyense* (Award of Merit). Silver-gilt Medal for group.

THOMAS STATTER, Esq., Stand Hall, Manchester (gr., Mr. Johnson), staged a group that consisted principally of *Dendrobiums*; there were choice forms of *D. nobile*, *D. Ainsworthii*, *D. × Apollo*, &c. (Silver-gilt Medal).

Mr. JOHN ROBSON, Altrincham, had a miscellaneous collection of good *Dendrobiums*, varieties of *Cattleya Trianae*, *Odontoglossum crispum*, &c., and a nice plant of *Cypripedium insignis Sanderi*. The most interesting plants in the group were two specimens of *Dendrobium barbatulum*, but which were erroneously called *D. Fytchianum*. They had fine spikes, bearing from twenty to thirty flowers on each. A Silver Medal was awarded for the group.

G. SHORLAND BALL, Esq., Ashford, Wilmslow (gr., Mr. Gibbons), sent a group of plants, amongst which were the rare *Dendrobium nobile* var. *virginale*, previously certificated by the Society; and *Cymbidium Ballianum*, some fine spikes of *Phalenopsis amabilis*, *Aerides Huttoni*, bearing small clusters of rosy purple, fragrant flowers, &c. (Silver Medal).

Mr. A. J. KEELING, Bingley, Yorks, staged a group, in which was a good form of *Laelia Joughiana* var. *rosea* (Award of Merit), *Odontoglossum Wilckeanum*, *Dendrobium nobile* var. *nobiliss*, &c. (Vote of Thanks).

A. Z. LEE, Esq., Stretford, exhibited a very late flowering form of white *Laelia anceps* in the way of *L. a.* var. *Stella*, which the Committee desired to see again.

E. H. SEDDON, Esq., Brooklands (gr., Mr. Milne), exhibited the rare *Dendrobium Wardianum* var. *ochroleuca*, an Orchid of exceptional merit and beauty (First-class Certificate).

W. DUCKWORTH, Esq., Shawe Hall, Flixton (gr., Mr. Tindall), showed a few very choice plants, the best of which was *Dendrobium* × *Ainsworthii* intertextum var. *grandiflorum*, a flower of fine size and substance, with pure white segments, and rich dark colouring in the cup of the lip (First-class

Certificate). Also *Dendrobium* × *Schneiderianum*, "Wells" var. (First-class Certificate).

MRS. GRATRIX, showed a beautiful form of *Cypripedium* × *Vipani*. There are plants bearing this name that are not worth cultivation, but Mrs. GRATRIX owns one of the best varieties (Award of Merit).

S. GRATRIX, Esq., Whalley Range (gr., Mr. McLeod), received a First Class Certificate for his variety of *Cypripedium* × *Cowleyanum*, which had greatly improved since the last meeting.

T. BAXTER, Esq., Morecambe (gr., Mr. Roberts), staged a few plants, the best of which were *Cymbidium eburneo-Lowii* var., with finely formed flowers of a pleasing buff colour (First-class Certificate), *Odontoglossum crispum*, var. *Roland Baxter*, a good spotted variety (Award of Merit), and *Odontoglossum luteo-purpureum*, var. *nigrum* (Award of Merit).

D. B. RAPPAET, Esq., Liscard (gr., Mr. Nicholson), exhibited the new *Laelia Cowani*, a plant of some merit and distinction, being bright yellow in colour, and of free habit, the individual flowers are not quite so large as those of *L. harpophylla* (Award of Merit); *Dendrobium nobile*, Rappart's var., also received an Award of Merit.

E. BOSTOCK, Esq., Tixall, Stafford (gr., Mr. Gill), showed *Cypripedium* × *Fascinator*, var. *nobilior* (Award of Merit), and *Cypripedium* × *Tixallense* (Award of Merit), the latter from a cross between *C. Lawrenceanum* × *C. Rothschildianum*.

Mr. J. CYPHER, Cheltenham, staged a group of plants, the gem of which was *Dendrobium* × *Apollo*, var. *album*, which was unanimously awarded a First-class Certificate (Silver Medal for Group).

Messrs. BACKHOUSE & SON, LTD., York, exhibited two good but unnamed forms of *Odontoglossum* × *Adrianae*, which were voted a First-class Certificate and an Award of Merit respectively. An Award of Merit was also given for their *Cypripedium Lawrenceanum* × *Rothschildianum*, P. W.

MISCELLANEOUS SOCIETIES.

Croydon Horticultural Mutual Improvement.—An interesting meeting was held recently in the society's room at the Sunflower Temperance Hotel. Mr. W. J. Simpson in the chair; and there were forty-nine members present. Mr. F. Gilbert, gardener, Heathfield, Addington, read a paper on "Violets," giving an account of the geographical distribution of the plant, and a practical description of his method of cultivation. The secretary, Mr. J. Gregory, placed before the members a complete list of books on Botany, Horticulture, Agriculture, Injurious and other Insects, &c., possessed in the Croydon Public Libraries. The list had been prepared for the society by the chief librarian, and much satisfaction was expressed upon receiving such a useful list for reference. Ten new mem. was nominated at the meeting. The next meeting will be held on April 20, when the subject will be "How Plants Feed," introduced by Mr. Green, chairman of the Ealing Gardeners' Society.

Wargrave and District Gardeners.—At a meeting held on March 21, Mr. W. Pope, gr. to J. P. White, Esq., read a paper on "Azalea Culture," showing that by proper management a succession of bloom may be secured throughout the winter and spring months. The best methods of raising new plants from seeds, by cuttings, and by grafting, were explained fully. Lists were given of the best twelve singles and twelve doubles to provide a good display of bloom for some months; they were as follows:—Singles: Chatter, Comtesse de Beaufort, Duc de Nassau, Flambeau, J. G. Veitch, Louis von Baden, Madame Van Houtte, Marquis of Lorne, Mrs. Turner, Princess Alice, Sigismund Rucker, and Willson Saunders. Doubles: Borsig, Alice, B. Andreas (violet), B. Andreas (alba), Deutsche Perle, Dr. D. Moore, Emperor De Brasil, François de Vos, Niobe, Punctulata fl.-pl., Souvenir de Prince Albert, and Vervaeana.

Royal Horticultural of Ireland.—At the usual monthly meeting of the Council of this Society, it was resolved to present an address to Her Majesty the Queen on her visit to Dublin. A grant was also made for the purpose of specially decorating the Royal University Buildings, where the Society intends to hold its usual spring show.

The Reading Gardeners' Mutual.—A very large attendance of members assembled on Monday last in the Club Room of the Old Abbey Restaurant, to spend an evening in "A Surrey Garden" by the aid of lime-light views and under the guidance of Mr. Alex. Wright, of Bucklebury Place Gardens. The garden was that of Falkland Park, which was entirely planned by, and for several years under the management of Mr. Wright, who, in an interesting discourse described the various alterations that were made, and the reasons for planting particular species of trees, shrubs, and flowers. Messrs. Baskett and Neve spoke to the very interesting evening that had been spent, and congratulated Mr. Wright on the capital manner in which he had laid out the grounds and gardens under his charge.

Obituary.

RICHARD CROSLAND.—We regret to announce the death by suicide of Mr. Richard Crosland, senior partner in the firm of Crosland Brothers, nurserymen and seedsmen, of Richmond, Yorkshire. Mr. Crosland, who has always been held in great respect, contracted an illness at Christmas-time, the effect of which has been to cause the deceased temporary attacks of melancholia.

MARKETS.

COVENT GARDEN, MARCH 29.

(We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.)

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, in sieves:	Grapes, Almeida, p.
— Beeding, bahl. 6 0-10 0	dozen lb. ... 9 0-12 0
— French Crabs, bushel ... 6 0-10 0	— Belgian, per lb. ... 2 0-2 6
— Wellingtons, bushel ... 8 0-12 0	— Class A. ... 1 6-2 0
— Various, per bushel ... 5 0-9 0	— Class B. ... 8 0-10 0
— Nova Scotia, Allwater, brl. 30 0-34 0	— Palermo, per case ... 8 6-12 6
— Baldwin, 25 0 —	Lyches, Chinese, new, pkt., 1 lb. 0 10-1 0
— Golden Russets, barrel 32 6 —	Oranges, Navel, case 9 0-14 0
— Nonpareil, barrel ... 16 0-25 0	— Bitters, 200 ... 7 0-8 6
— Nova Scotia and States, various, barrel ... 22 6-34 0	— Blood, 300 ... 14 0 —
— Golden Russets, barrel 25 0-25 0	— Jaffa, per case of 144 ... 12 0-12 6
— Californian, cases, New Town ... 9 0-15 0	— Mandarin or Tangerine, case of 100 ... 8 0 —
Bananas, per bunch ... 7 0-10 0	— Murcia, case of 240 ... 10 6 —
Figs (New Jersey), per doz. ... 12 0-24 0	Pears, Californian, Easter Beurre, cases ... 22 6 —
Grapes, Gros Colmar, Class A, pr. lb. 3 6-4 0	— half cases ... 16 0 —
— Class B, per lb. ... 1 6-2 0	Pines, each ... 2 6-4 6

VEGETABLES.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe, per doz. ... 3 0-3 6	Monks' beard (Barbe de Capucine), p. bunch ... 0 4 —
— Jerusalem, per sieve ... 1 0 —	Mushrooms, house, per lb. ... 0 8-0 10
Asparagus, Spruce, per bundle ... 0 9 —	— Onions, bags ... 5 0-5 6
— English forced, per bundle ... 7 0-8 0	— Picklers, cases ... 2 6-3 0
— Giant, bundle ... 12 6 —	— Valencia, sieve ... 6 6-7 0
— Paris, Green, per bundle ... 0 6 —	— English, cwt. ... 5 6-6 6
— Spanish, bndl. 2 3 —	— German, bags ... 5 0 —
Beans, Channel Islands, per lb. 1 3-1 6	— Parsley, 12 bunches per sieve ... 3 0-4 0
— Madeira, basket ... 5 0-5 6	— per bag ... 1 0-1 6
— French, pkts. lb. 0 8 —	— Parsnips, per dozen per bag ... 4 0-5 6
— Broad, or Long Pods, in flats ... 5 6 —	Peas, French, per lb. pkt. ... 0 5 —
— Broad, per dozen ... 0 6-1 0	— Flats ... 6 6 —
— per bush. ... 1 6-2 6	Potatoes, Old various, per ton ... 60 0-90 0
Broccoli, Cornish, per crate ... 10 0-12 0	— Dunbar Main Crop, per ton 100 0-110 0
Cabbage, tally ... 6 0-8 0	— New Channel Islands, frames, per lb. ... 0 6-0 7
— dozen ... 1 6-2 0	— Tenerife, in boxes, cwt. ... 14 0-18 0
Carrots, English, p. dozen bunches ... 2 6-3 6	— French Kids, in boxes, per lb. 0 24 —
— good, cwt. bags, washed ... 4 0 —	— per cwt. ... 16 0 —
— French, small flats ... 1 9 —	Radishes, Long, doz. 0 8-0 10
Cauliflowers, per dozen ... 2 0-4 0	— round ... 0 9-0 10
— Cornish crates ... 10 0-12 0	Rhubarb, home grown, natural, per dozen ... 3 0-4 0
— Italian, baskets of 18 ... 5 0-5 6	— forced, per doz. ... 6 0 —
Celery, red, roll, per dozen ... 12 0-18 0	— Yorks ... 1 6-1 10
Chicory, per lb. ... 0 3 —	Salad, small, punnets, per dozen ... 1 8 —
Colewort, p. bush. 2 6-3 0	— Salsify, bundle ... 0 4 —
Cress, doz. punnets ... 1 6 —	— Scotch Kale, bush. 2 6-3 0
Cucumbers, doz. ... 3 6-6 0	Seakale, per dozen punnets ... 30 0-24 0
Endive, new French, per dozen ... 1 6-2 0	— Shallots, per lb. ... 0 8 —
— Batavian, doz. ... 2 0 —	Spinach, French, crates ... 3 6 —
Garlic, per lb. ... 0 3 —	— small leaf, bush. 5 0 —
Horseradish, English, bundle ... 1 6-2 0	Tomatoes, Canary, deeps ... 3 0-4 6
— foreign, per bun. 1 0-1 2	— Turnips, per dozen bunches ... 3 0 —
— loose, per doz. 2 6 —	— cwt. bags ... 2 6-3 6
Lettuce, French, Cabbage, dozen ... 1 8 —	— new French, per bunch ... 1 0 —
— French Cos (good), per doz ... 4 0 —	Turnip tops, bags ... 3 0-4 0
Mint, new, p. doz. bunches ... 8 0-9 0	Watercress, p. doz. bunches ... 0 9-0 10

POTATOES.

Main Crop, &c., 75s. to 95s.; Dunbars, 100s. to 110s.; Other varieties, 65s. to 90s.; Seed Potatoes from 4s. 6d. to 7s. per cwt. John Bath, 32 & 34, Wellington Street, Covent Garden.

REMARKS.—Home grown Tomatoes are now occasionally up in the market at 6d. per lb. Some Tomatoes from the Canaries are very good, and owing to method of packing adopted travel well. Cape Grapes generally are in bad condition, and prices of from 3s. to 12s. case, are only realised. The first consignment of Tasmanian Apples was expected to arrive on Monday next. English Onions are dearer, Cucumbers rather easier, Rape-tops, and Thousand-headed Kale, in Bags, are a plentiful supply, and the prices are low. Peaches and Pears from the Cape are now past.

OUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Arum Lilies, dozen blooms ... 2 0-3 0	Narcissus (yellow) doz. bunches ... 2 0-6 0
Asparagus "Fern," bunch ... 2 0-2 6	— (white) doz. ... 3 0-6 0
Carnations, per doz. blooms ... 1 6-2 6	— P. Eyes, d. bun. 5 0-7 0
Cattleyas, per dozen ... 12 0-15 0	Odonoglossum, per dozen ... 4 6-9 6
Eucharis, per dozen ... 2 0-3 0	Roman Hyacinths, doz. bunches ... 5 0-9 0
Gardenias, per doz. ... 8 0-6 0	Roses, Red, per doz. ... 4 0-6 0
Lilac, white, bunch ... 3 6-6 0	— Tea, white, doz. ... 3 6-7 6
— mauve, bunch ... 6 0 —	— Yellow, Perles, per doz. ... 3 6-7 6
Lilium Harriadi, per dozen blooms ... 4 0-6 0	— Safraseo, per doz. ... 2 6-3 6
Lilium longiflorum, per dozen ... 5 0-7 0	— Maréchal Niel, per doz. ... 6 0-10 0
Lily of Valley, per doz. bunches ... 8 0-10 0	Smilax, per bunch ... 3 0-4 0
Maidenhair Fern, per doz. bunches ... 6 0-8 0	Tabaccoes, per doz. blooms ... 0 9-1 0
Marguerites, p. doz. bunches ... 3 0-4 0	Tulips per bunch ... 0 8-1 6
Mignonne, per doz. bunches ... 4 0-6 0	— dark (French), per doz. bunches ... 1 0-3 0
	— English, 12 bun. 1 0-2 0

PLANTS IN POT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Adiantum, p. doz. ... 5 0-7 0	Ficus elastica, each ... 1 6-7 6
Arbor-vitæ, var. doz. ... 6 0-8 0	Foliage plants, var., each ... 1 0-5 0
Aspidistra, p. doz. ... 12 0-16 0	Genistas, per doz. ... 10 0-15 0
— specimen, each ... 8 0-10 0	Lily of Valley, each ... 1 9-3 0
Crotons, per doz. ... 18 0-20 0	Lycopodium, doz. ... 3 0-4 0
Cyclamen, per doz. ... 8 0-10 0	Marguerite Daisy, per dozen ... 8 0-12 0
Dracenas, var. doz. ... 12 0-18 0	— Myrtles, per dozen ... 6 0-9 0
— viridis, per doz. ... 9 0-18 0	Palms, various, ea. 1 0-15 0
Dutch Hyacinths, per doz. ... 6 0-12 0	— specimen, each 21 0-38 0
Ericas, var., per doz. ... 18 0-36 0	Pelargoniums, scarlet, per dozen ... 8 0-12 0
Euonymus, various, per dozen ... 6 0-18 0	Primulas, per doz. ... 5 0-8 0
Evergreens, var., per dozen ... 4 0-18 0	Roman Hyacinths per doz. ... 10 0-12 0
Ferns, small, per 100 ... 4 0-6 0	Tulips, per doz. ... 1 6-2 6
Ferns, in variety, per dozen ... 4 0-18 0	

(For remainder of Markets and Weather, see p. xii.)

ANSWERS TO CORRESPONDENTS.

ARAUCARIA IMBRICATA: A. O'N. The coning of this species of Conifer is tolerably common in this country, but no one tree ever carries many cones at one time.

BLACK VARNISH ON HOT-WATER PIPES: J. S. We know of nothing short of burning off the varnish (usually a mixture of coal-tar and naphtha) to be effectual. It could be done with a horse-singeing jet of gas or oil, the fumes being driven out of the house by admitting fresh air in quantity. Perhaps to mitigate the bad effects of the burning varnish on the Vines, &c., some means could be found to prevent the fumes reaching these. Another course would be to take the apparatus to pieces, and burn the varnish in the open air.

BOOKS: *Ad libitum*. The *Gardeners' Assistant* is out of print, but a new edition is in preparation.—R. R. L. You will find Mr. A. F. Barron's *Vines and Vine Culture*, 3rd edition, meet your wants exactly; it is published at the office of the *Journal of Horticulture*, 12, Mitre Court Chambers, Fleet Street, London, E.C.

CARNATION: W. S. We do not undertake to name florists' flowers. We hardly think it worth exhibiting, as there are so many equally good, or better.

CARNATION SEEDLING FROM MISS JOLIFFE: H. E. The bloom sent is a fairly good one, and if it be a perpetual or tree variety, it should meet with favour. The colour, bright crimson, makes it a desirable flower for the gardener and decorator, but the picotee edging to the petals will not be to the florists' liking.

EMPLOYMENT AT KEW: One interested. Applicants must be over twenty years of age, and should have had at least five years practical experience in good horticultural establishments. The wages amount to a guinea a week, with extra remuneration for Sunday duty. There are no lodgings provided, and there is a regulation to the effect that gardeners, whilst at work, must wear blue serge clothing and grey woollen shirts. The privileges of gardeners at Kew have been increased of late years. Apply to THE CURATOR, ROYAL GARDENS, KEW, who will send you a form to fill up, and you may then look forward to an appointment when there occurs a vacancy. The botanical classes you have attended should help you to make the greatest use of the advantages a sojourn at Kew undoubtedly affords to a young man anxious to excel in a knowledge of his profession.

FLOWER DEALERS: D. W. We are unable to accede to your request. As you reside so near the metropolis, you should come to the market and select a salesman.

GRAFT SUPPORTS: T. H. L. No supports are necessary previous to the growth of the scions. The clay round a graft should be removed, and fresh and looser ligatures put round the scion and stock, as soon as a union has taken place.

HYACINTH BULBS: H. H. The bulbs are affected with the bulb-mite (*Rhizoglyphus*). Some of them are also penetrated by the *Narcissus-fly* *Merodon*. Burn them.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—T. R. *Eupatorium ianthinum*.—*Journeymen*. The foliage of *Codisuma*, or *Crotons* as they are called in gardens, varies considerably, but those you send we believe to be: 1, *C. Weissmannianum*; 2, *C. variegatum*; and 3, *C. Queen Victoria*; 4, *Davallia hirta cristata*; 5, *Selaginella Wildenovi*; 6, *Dendrobium Pierardi*.—*Matchbox*. *Dendrobium Pierardi*, the shorter stemmed *D. primulinum* is near it, but usually has a much larger lip.—E. F. Numbers detached. The large single flower is *Dendrobium cariniferum*; the white spray *Eria acervata*, and the other probably *Bulbophyllum brevicauda*.—S. T. & Co. *Odonoglossum Andersonianum*, good variety.—W. T., *Harrogate*. A very pretty form of *Dendrobium nobile*, resembling *D. nobile Sanderianum*.—*Ad libitum*. *Daphne Mezereum*.—C. J. A., *Evereholt*. *Dendrobium nobile*.—J. W. A *Cistus*, perhaps *C. ladaniferus*.

NARCISSEUS: F. C. The reason why the flowers of these bulbs go, in gardeners' parlance, "blind," is yet to be discovered. Some species are very subject to the mishap, notably *N. poeticus*.

THE PINE-BEETLE (*HYLURUS PINIPERDA*): R. S. *Margetta*. The life-history of the Pine-beetle (*Hylurus piniperda*) is briefly this. In April and May the beetles first make their appearance, when pairing probably takes place. The female then cuts a comparatively straight tunnel under the bark of the Fir, laying her eggs in little recesses at regular intervals along both sides of the gallery. When the young maggots hatch from them, they, each for themselves, cut an independent gallery almost at right angles to that of the parent; and thus, together with the aid of a host of other family parties, they completely separate the bark from the tree, leaving a network of tunnels filled with "frass" *dejecta*, which clearly portrays the course of their journeyings. When full fed, pupation takes place beneath the bark at the extremity of the larval burrows; and when the beetles are ready to emerge, they cut their way out through the bark, leaving the beautifully circular "shot holes" as an indication of their escape. The breeding-grounds are confined to the stems and branches; the beetles do not lay their eggs in the Pine-shoots, although they make tunnels in them, and are found in them in winter. The application of grease-bands would be of no service in checking the pest. Your best course is to trap them; and this is done by placing freshly-cut logs or branches of Pine among the infested trees. In these the beetles will readily lay their eggs, and when subsequently the grubs are found at work beneath the bark, the branches should be collected and burned. R. N.

COMMUNICATIONS RECEIVED.—M. F.—H. W.—W. W.—W. B.—S. A.—W. T. T. D.—H. H. H.—F. Burvenich.—R. N.—W. R. F.—C. C.—Dr. Bonavia.—R. Newstead.—S. A.—X. Y. Z.—H. T. M.—Arden.—A. W.—A. J.—W. H.—J. Benbow (please hold your hand for two weeks).—J. H.—R. J. Lynch.—W. Chambers.—G. B. M.—W. C.—F. H. P.—B. W.—A. C. F.—J. J. W.

PHOTOGRAPHS, ETC., RECEIVED WITH THANKS.—Mrs. White.—M. S.

Continued Increase in the Circulation of the "GARDENERS' CHRONICLE."

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

TREBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.



THE

Gardeners' Chronicle

No. 693.—SATURDAY, APRIL 7, 1900.

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THE DAUGHTERS OF THE YEAR.

I.—MARCH.

MANY of us are periodically solicited by enticing advertisements to share the advantages of a "Personally-conducted Tour," with a Doctor of Divinity and a Bishop's son to lecture us as we go upon the famous stages of our road. Such a tour, on a more modest scale, I contemplate in these short papers; not to the Grindelwald, the Levant, the Nile, but "autour de mon jardin," through the sunny borders, and sheltered Rose-beds, and arched pergola, and dialled lawn, and the Fern-clad rockery of my own small garden, unfolding as I can their esoteric charm; the secrets, over-passed by half-observant eyes, of mythical antiquity, and quaint folk-lore, and forgotten custom, and poetic or historic association, dormant in the things of beauty which dance into light and die into the shade as the daughters of the year pass on.

"Corycius senex," I shall call myself, reminiscent of the musical Vigilant parenthesis, which shows that the poet of cornfields, vineyards, cattle, bees, was capable, had his muse so ordered it, of chanting a fifth Georgic upon gardens. I lack the old man's South Italian site, and soil, and climate. My Ebalian towers are the backs of shabby cottages, my dark

Galasus an open village drain, my "waistrel plot" a half acre of gravel-capped boulder clay, the gales that o'er me blow most often rasping North Sea squalls; but, as the dear sententious Antiquary says, *Kunst mach Gunst*, skill and care enforce success; judicious planting, plentiful dressing, tenderness of incessant care, have enabled me to vie with Virgil's veteran in "Lilies, Vervain, slender Poppies, summer Roses, autumn fruits;" with him, I am as proud of my small enclosure as are kings of their diversified demesnes.

According to the Calendar, spring begins in March, but the Calendar, like the Law, "is a hass." Sometimes we get spring days about the equinox, such as Wordsworth and his sister gave to idleness at Alfoxden. This year the soaking rains of the two first months have been followed by days black, bitter, sunless; and the floral show as the month goes out is in my experience unprecedentedly poor. The little Winter Aconite justified its reputation as "The ae first flower springs in moor or dale." Its green frill and small shining yellow globe peered from the wet black soil upon Twelfth Day; but just as its thick growth under the Ilexes reached perfection, it was covered up with long-lying snow, to emerge forlorn and dragged in the thaw. Snowdrops were late, but unusually fine; so were Crocuses, the last breaking like fire on the few sunny days, in sheets yellow, dashed with white and purple, as on Mount Ida, when the goddesses came disrobed to Paris. Of Snowdrop and Crocus we always think together. Prior calls them bride and bridegroom—

Thy fancied bride,
The delicate Snowdrop, keeps
Her home with thee; she wakes and sleeps
Near thy true side.

Somehow the older poets seem to have missed the Snowdrop. I cannot find it in Homer or Virgil, not in Shakespeare, Spenser, Beaumont and Fletcher, or Ben Jonson; it is absent from the wreath which decked the laureate hearse of Lycidas; nor, to come further down, does garden-loving Cowper cite it once. But it neighbours Shelley's Sensitive Plant; Wordsworth hymns it in allusion and in sonnet; Tennyson glorifies February Fair Maid, "coming in the cold time, prophet of the gay time;" Keble inscribes to it his Easter Tuesday verses; and a pretty nursery poem welcomes it as Flora's messenger—

To whisper soft and clear,
That all the flowers are coming,
And they will soon be here.

Crocuses are sung more loftily. Homer makes them spring to hail the embrace of Zeus and Here; Sophocles recalls them fondly as shining golden-rayed in the Athenian groves; Milton inlays with Violet, Crocus, Hyacinth, the nuptial bower of Eve. They are the first flowers to yield pollen; bee-masters anxiously watch their opening, for bees gathering their yellow dust come from colonies whose young brood has survived the winter. Virgil, too, notes them as bee-food, together with the flowers of the Willow. Probably none of us have ever seen a bee upon a Snowdrop.

Wavers on her thin stem the Snowdrop cold,
That trembles not to kisses of the bee,

says Tennyson; though the Duke of Argyll records as a prodigy that once on a strangely hot day in early March, before the Crocuses had opened, all the hives came out and fell upon the Snowdrops in default. Not to much purpose, I am afraid, for the finely pointed

anthers, opening only at the top, would oppose the entrance even of their lithe tongues.

Of less common flowers I note a patch of Cyclamen which has been covered with blossom all the month. It came from the Camaldoli Garden, where in the autumnal months Lorenzo de Medici was wont to entertain the scholars and philosophers of Florence. There it sparkles still in March and in September, and here in chilly exile puts forth every spring its delicate pink flowers, and strong mottled leaves. A more uncommon foreigner, growing under our shrubs and trees with vigorous light green foliage and pendent purple bells, is *Scopolia carnolica*, named after Scopoli, physician to the convict wretches in the Austrian quicksilver mines, whose works on Natural History Gilbert White consulted and admired. My Lungwort, or Virginian Cowslip (Virgin Mary's Castle, the villagers call it), has in vain struggled to open its bloom as yet, put to shame by its kinsman, a coarse blue Comfrey, which grows hard by. Grape Hyacinth too is late; but *Chionodoxa*, the "China-dox" of phonetic gardeners, is radiant; its paler blue not eclipsed by the richer colouring of the Squill, which I carefully plant apart. White Arabis defies the weather gaily; yellow Jasmine hides its wall; the Periwinkles, blue, white, puce, amongst whose tangled stems are pushing up a crop of unopened Daffodils and of Italian Arum-leaf, put out a few flowers timidly. The Hellebores have been and are in show; Hepaticas sparse and starveling; but *Dondia Epipactis* beside them is profuse in yellow bloom and persistent glossy leaves; while the tall spikes and spacious foliage of the Butterbur fill handsomely a corner of the rock-bed where nothing else will grow. That, I think, is all.

My neighbour's larger ground, with its four gardeners, has even less to show than mine outside the glass; nor humble bee nor tortoiseshell-butterfly has been seen in either. Hazel catkins are half grown; Hawthorn leaf-buds untipped with green.

March, according to our local proverb, goes out as it came in, with Adder's-tongue; its peacock's tail will sprout belated under April skies. *Corycius senex* (Lincolnshire).

ORCHID NOTES AND GLEANINGS.

DENDROBIUM × MURRHINIACUM (RCHB. f.).

OCCASIONALLY I have received for several years past flowers from various sources, which were said to have resulted from crossing *D. Wardianum* and *D. nobile*. In every case these resembled good forms of the fine hybrid known in gardens as *D. × splendidissimum grandiflorum*, whose parentage as recorded would place it under *D. × Ainsworthi* (*nobile* × *aureum*), although it is much larger in growth and flower. The question is again raised by flowers being sent by that observant orchidist, Reginald Young, Esq., Fringilla, Linnet Lane, Sefton Park, Liverpool, and more recently by W. J. Thomson, Esq., Ghyllbank, St. Helens, in both cases the parentage being given as *D. Wardianum* × *D. nobile*.

The flowers, as usual, remind me of *D. × splendidissimum grandiflorum*, but a reference to the description of *D. × murrhiniacum* in the *Gardeners' Chronicle*, May 5, 1888, p. 554, shows that these flowers agree with the hybrid raised between *D. nobile* and *D. Wardianum*, and in which the suppression of the orange colour in the lip was a remarkable feature. The chief departure in the flowers now under notice is the presence of a slight rose flush over the parts described as white in the original, but that can well be accounted for by the

later specimens being more mature, and capable of developing their colours. Certainly the flowers, like most of the best forms of *D. × splendidissimum grandiflorum* in their larger size and broader segments, give strong indication of and resemblance to *D. Wardianum*.

The next question is, did the first flowers of *D. splendidissimum grandiflorum* in their general resemblance to the smaller *D. × Ainsworthi*, and the lack of the colours on the lip to be expected in a hybrid of *D. Wardianum*, influence the raisers to conclude that the parentage must be the same as *D. × Ainsworthi*, though, by some unaccountable means its gigantic stature when properly grown, and its much larger flowers, together with a much freer habit of growth, had resulted? I would like to hear the opinions of others on this point, and especially to learn whether any raiser has procured an authentic hybrid between *D. Wardianum* ♀ and *D. nobile*, or *vice versa*, which

structure provides for the arrangement now known to be the most suitable, viz., Begonias and other foliage-plants growing under the stages, a liberal tank storage for rain-water, close moisture-holding staging with open staging over it on which the plants are arranged, and perfect ventilation. The plants throughout are in splendid condition, and a good number of them in flower or bud, the greater part being good forms of the favourite *Odontoglossum crispum*. Among these was a most extraordinary variety which, though not florally so showy as the generally seen forms, was very distinct and attractive. Its segments, labellum included, were lanceolate, and totally different in shape to any other variety. The flowers were tinged with pink, and more brightly coloured with rose-purple on the reverse side, the disc being yellow.

Also in the house in flower was a very fine series of several varieties of hybrid *Odontoglossums*

Cypripediums, &c., were a good example of *Aerides Fieldingi*, with very strong flower-spikes; the pretty *A. Houlettianum*, the rare blue *Aganisia cyanea*, *Angraecum citratum*, with several long, drooping spikes of white flowers; *Chysis bracteata*, and a very handsome plant of the rare *Zygopetalum grandiflorum*, bearing several of its large and curiously-formed flowers.

Another warm house has a number of fine plants of forms of *Cypripedium × Lecanum*, raised at Castle Hill, and which have proved of excellent quality. At one end of the house is a number of varieties of *Vanda tricolor* and *V. suavis*, including the fine *V. tricolor Patersoni*. These plants are not often seen so well grown in collections as they were some years ago. Probably their subjection to too high a temperature has caused the loss of many specimens. With the *Vandas* are several plants of the showy hybrid, *Phaius × Norman*, with large attractive flowers of various tints

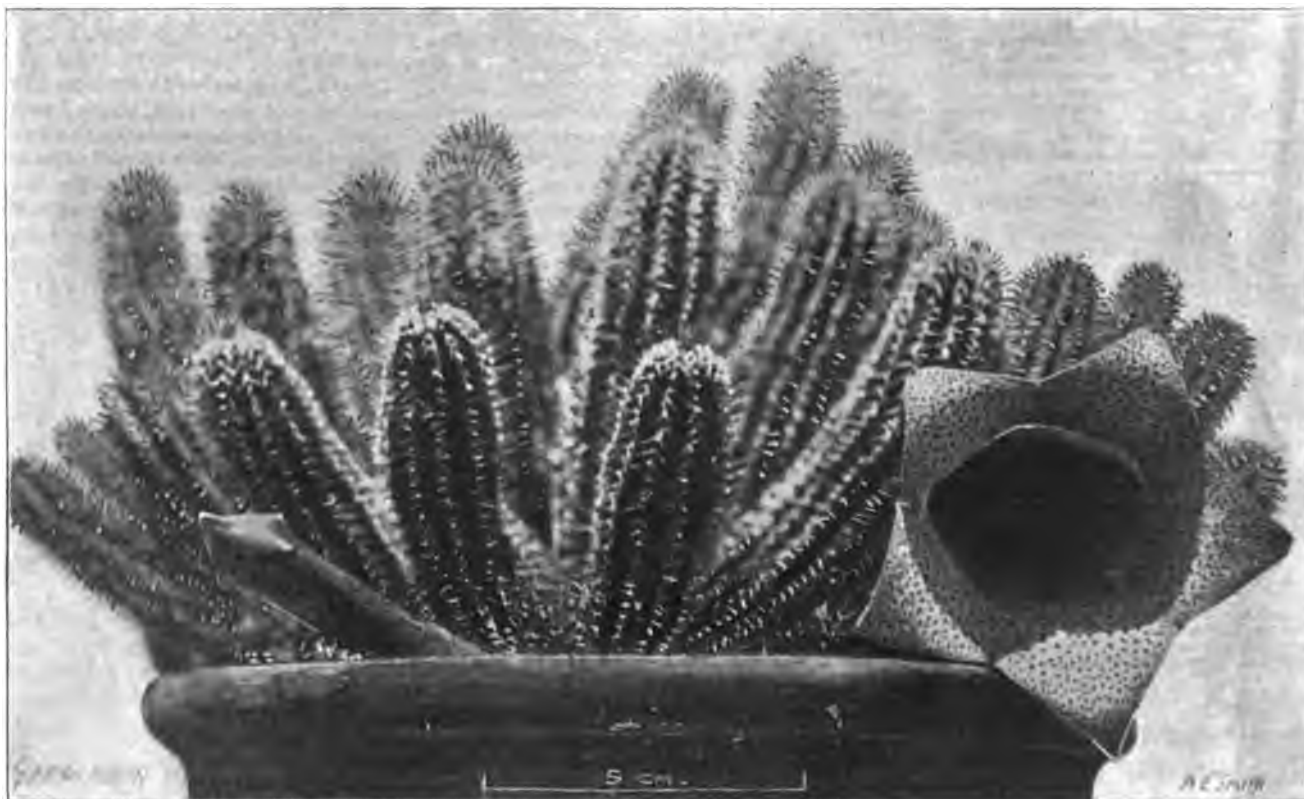


FIG. 67.—*DECABRCLONE BARKLYI*. (SEE "KARROO" PLANTS.)

(The horizontal line shows the relative size—5 cent. = 2 in.)

showed better indications of *D. Wardianum* than all these which I have seen, and which bear a general resemblance to good *D. × splendidissimum grandiflorum*. I may say, that to my mind, *D. × Ainsworthi* and *D. × splendidissimum grandiflorum* would not have resulted from the same cross. James O'Brien.

ORCHIDS AT CASTLE HILL.

A marked improvement is to be noticed in the gardens on the estate of George C. Raphael, Esq., at Englefield Green, since they have been in charge of Mr. H. Brown, the present gardener there, but no branch of the establishment shows so effectively at the present season what good cultivation can accomplish as the Orchid-houses, where there is now a good show of flowers, and a fair promise of a continuation of them.

Formerly the *Odontoglossums* and other cool-house Orchids were unsatisfactory, and new houses were constructed for them on the best known plans, and that has doubtless played a very important part in the salutary change. The plan of the

of the *O. × Andersonianum* class, with larger and brighter flowers than those of the same class usually seen, and varying much in colour, one like a large form of that called *O. × hebraicum* being specially fine: and another, a fine *O. × Ruckerianum*, very brightly coloured. Also well flowered were some good *O. Halli*, *O. Pescatorei*, *O. Rossii majus*, *O. cirrosum*, *O. × Coradinei*, *O. gloriosum*, *O. triumphans*, *O. Harryanum*, and others, bright colour being supplied by the orange-scarlet *Ada aurantiaca*, and a few plants of the scarlet *Sophranitis*.

In the Cattleya and Lælia-house there has been a fine show of *Cattleya Trianaei*, and still a number remain, mingling their flowers with those of the delicately-tinted *C. Schroderae*. Striking plants in this house were *Dendrobium aggregatum*, a fine old species with large spikes of orange-yellow flowers; *D. Pierardi*, good forms of *D. × splendidissimum grandiflorum*, the fine white *Odontoglossum pulchellum majus*, and the violet-coloured *O. Edwardi*, *Oncidium incurvum*, *O. sphacelatum*, and other *Oncidium*s. In a warm house containing

of light rose, with rich purple labellums veined with gold; and suspended at one end was a graceful plant with long bright green leaves, and drooping racemes of curiously-formed cream-white flowers. It was purchased by Mr. Raphael some years ago as *Angraecum pallidum*, but seems to be *A. ichneumonum*. The conservatories and other plant-houses are well kept, and bright with flowers; the greatest display being made by a batch of the Natal *Clivia miniata*, now a sad reminder of Mr. Raphael's son, Lieut. Raphael, who bravely fought at Spion Kop, where his remains now rest.

"KARROO" PLANTS.

ONE of the consequences of the present proceedings in South Africa will, no doubt, be an increased interest in the plants of that region, which are in many ways of peculiar attractiveness. In a *Sketch of the Flora of South Africa*,* by Mr. Harry Bolus, a most graphic account is given of the vegetation

* Official Handbook, Cape of Good Hope Colonial and Indian Exhibition, 1895.

of that region, which, "ever since the time of its first settlement, has been a constant source of pleasure and delight to the botanist and the gardener. From 1775 to 1835 Cape plants may be said to have been quite the rage."

Of the five natural regions into which South Africa is divided, that known as the "Karoo" is characterised by the "queerest" forms of plant-life. This region extends from Namaqualand on the west side, across north of the South-west and East Provinces, almost to Grahamstown on the east. Its height above the sea ranges between 2000 and 3000 feet. The climate is one of great dryness, and extremes of heat and cold. The plants which thrive under such conditions must be able to support not only severe climatic trials, but also be provided with protection against various

a resemblance which may be protective. Both species have been found near Graaf-Reynet.

The following extract from Mr. Bolus's Sketch, mentioned above, will afford an idea of what we may expect from the "Karoo" and similar regions in South Africa when collecting recomences there:—

"During the periods of drought nothing can be imagined more desolate and mournful than the appearance of the vegetation. The soil is rarely covered, bare patches of greater or less extent intervening between shrubs and bushes. These are frequently blackened by drought as if they had been killed by fire. The largest, and indeed almost the only trees, are those of *Acacia horrida* (Doornboom), which line the banks of the dry river beds as with a fringe; and occasionally, on the

of dead shrubs killed by previous droughts, standing like ghostly intruders on a scene of merriment and joy. These charming displays pass away all too rapidly, and in a month or two little that is beautiful remains." *W. W.*

[Our illustrations were forwarded to us by Mr. Karl Dinter from German S.W. Africa, and were alluded to by him in a letter in our columns, p. 113, *ante*. Ed.]

THE BULB GARDEN.

TULIPA KAUFMANNIANA.

THIS pretty Tulip is well worthy the attention of cultivators on account of its extreme earliness and bright handsome flowers. The plants average half-



FIG. 68.—MESEMBRYANTHEMUM TRUNCATELLUM. (SEE "KARROO" PLANTS, P. 210.)

animals. Succulence, spinyiness, and repellent odour are therefore common possessions of the plants found there. Two of them are shown in the figures.

Decabelone Barklyi (fig. 67, p. 210) is a *Stapelioid* plant, with clusters of fleshy, spinous stems, 6 inches high, bearing conspicuous bell-shaped flowers, coloured lurid yellow, heavily spotted with brown-purple. A figure of it was published in vol. 101 of the *Botanical Magazine*, t. 6203, from a plant sent to Kew in 1874 by the late Sir Henry Barkly from little Namaqualand.

Mesembryanthemum truncatellum (fig. 68) was described by Haworth as the "great dotted Dumplin," and sent to Kew by Masson in 1795, but it was not figured in the *Botanical Magazine* until 1874 (t. 6077). A similar species, *M. Bolusii*, was figured in the same work in 1882 (t. 6064). Living plants of it are among a selection of "Karoo" plants in the Cape-house at Kew. It will be noticed that there is some resemblance between the plants and the stones amid which it grows,

higher mountain sides, a few other trees of shrubby habit occur. For the most part the shrubs are scattered, and range from 5 to 8 feet in height, with intervening shrublets of 1 to 2 feet. Yet, after copious rains, all will be changed within a week or two, as if by magic. Many of the apparently dead bushes put forth green leaves; the shrublets are covered with flowers often before the leaves can be seen; bulbous plants which may not have flowered for several years previously, send up their scapes with incredible rapidity; and annual flowering herbs and grasses are everywhere seen where formerly all was bare and barren. Namaqualand, perhaps, exhibits this phenomenon to the most striking extent. I was amazed, on visiting that desert country after the rains of June to July, 1883, to see tracts, hundreds of acres in extent, covered with sheets of living fire, or glowing purple, visible from several miles distance, caused by the beautiful Composite and bulbs in flower; and nothing is more singular than to see this luxuriance intermingled with the black or white branches

a-foot in height, and bear cone-shaped flowers, which when fully expanded measure 5 inches across. The ground-colour of what I take to be the type is cream-white, with a yellow eye; the outer segments are banded with pale carmine on the outside, with a cream-coloured edge. In some forms—and they are numerous in imported batches—the colour is paler; in others, a few irregular carmine spots appear to form a ring around the eye; in others, again, the ring is continuous and very wide, giving the flower a brilliant appearance. It is an exceptionally hardy Tulip, the flowers standing frost with impunity, opening again during bright sunshine.

It is most suitable for the rockery, or for planting in small beds in association with *Chionodoxas* and other small-flowering bulbs, the blossoms appearing at the same season. Some plants have been in flower for several days at the time of writing (March 30), though they have withstood several degrees of frost nearly every night without taking harm. Judging from its behaviour so far,

it is likely to prove more amenable to cultivation than its fellow-countryman, *T. Greigi*, a plant I have found extremely difficult to grow and flower well, although I have imitated the conditions under which it grows in Turkestan. *T. Kaufmanniana* is not a new plant, though it has been scarce until recently. It was shown at the last meeting of the Royal Horticultural Society by Messrs. Wallace & Co. of Colchester, who have done yeoman service in introducing many new things of garden value. *Geo. B. Mallet, Isleworth.*

BULBOUS IRISES.

IRIS RETICULATA AND ITS ALLIES.—Those bulbous Irises which are typified by *I. reticulata* are fascinating garden plants, with sessile, somewhat rigid flowers, with stems only a few inches in height; and flowering as they do in the early spring, they are of much value to the gardener. Owing to their small size, and the need of care at all times, they are not fit subjects for placing with strong-growing border plants; on the contrary, they are well suited on the rockery, or on a grass bank which is naturally dry in summer, clothing it in the fashion of an alpine pasture. The plants succeed in a bed or border, consisting of a fairly good loam overlying gravel, brick rubble, or other porous substance. Many of them thrive in pots if care be taken not to let them suffer from drought after flowering and whilst still in leaf, nor from over-much exposure when at rest. All are hardy in the usual sense of the term, but there are several mid-winter flowerers which need glass protection in order to protect the flowers against storms and frost. Most of them produce seeds freely, and are easily increased thereby. The seed should be sown directly it is ripe, either in moderately-deep pans in heated frames, or in the open border, in which case the seed should be covered in winter with a handlight or frame. Many of these Irises produce offsets, and succeed thoroughly if planted at the base of a warm wall if sheltered with a sheet of glass in the winter season.

I. reticulata (figured in *Gardeners' Chronicle*, April 19, 1879, and February 16, 1884), is very suitable for spring bedding; the flowers coming out when the winter is nearly over. The flowers are decidedly fragrant, of a rich violet colour, with a small orange-coloured patch on each "fall" or outer segment. Their width is about four inches. The leaves are quadrangular, not fully grown when the plant is in flower, and they end in a rigid point. This plant is becoming somewhat difficult to obtain in quantity and true to name; the var. *Krelagei* being occasionally mixed with it, and not infrequently substituted for it. Large beds of this species and its var. *histrioides* may be seen in flower at Kew each year, affording testimony of its usefulness as a spring bedder. When used for bedding, some close-growing plant should be planted to cover the soil, the rich dark colours of their flowers being lost when seen in juxtaposition with the earth. For this reason, I much prefer to plant them on the grass when the latter is sufficiently dwarf in growth to allow the leaves of the Irises making headway.

I. reticulata var. *cyanea* has a very dwarf flower-stem, scarcely raised above the ground. The colour, as the name implies, is cornflower-blue. It is much thinner, smaller, and more delicate than the type, and is only suitable for pot-culture or for planting under a wall, as the rain spoils the flowers before they are fully open; its chief interest lies in its colour. It is the most expensive of all bulbous Irises to buy.

I. reticulata var. *histrioides* is a plant which is equal to the type as regards beauty and hardiness. It flowers at about the same time, and is suitable for all those purposes to which *I. reticulata* is put. The flowers are more than four inches across, uniformly rich blue in colour, with a few richer spots on the falls in some of its forms. It flowers before making very much leaf-growth.

I. reticulata var. *Krelagei*.—The flowers of this variety are considered to be inferior to those of the

type, and are of a reddish-purple tint, in some forms somewhat undecided and washy, with a yellowish blotch on the falls. Imported bulbs show considerable variation in colour and size, some being distinctively coloured. It flowers with the type in the month of March.

I. reticulata var. *Sophemensis*.—This variety possesses flowers that resemble *I. var. Krelagei* in colour; the segments very narrow, and the styles and falls widely separated. It flowers at about the same time as *I. r. Krelagei*.

I. Bakeriana is a species differing from *I. reticulata* in having round, tapering leaves with eight prominent ridges extending throughout their entire length. The flowers are fragrant, dark blue in colour with a yellow blotch on the blade of the fall, which is also more or less spotted. The parts of the flower are rigid, erect, and close together, rarely expanding to the full extent as in *I. reticulata*. It is also smaller than the flower of that species, measuring 3½ inches across; it makes a pretty pot-plant, and is quite happy in the rockery, liking a root run of broken bricks, &c. It thrives when planted close to the tile edging of a border; its native country is Armenia.

I. Danfordiae.—A pretty yellow flowered species from Asia Minor [recently described and figured in these pages. See fig. 54, p. 170, ante. Ed.].

I. histrio does not differ materially from *I. reticulata* in either the form of the leaf or flower. It is regarded by some authorities as being only a variety of that species. It is, however, given specific rank at Kew, and as such I introduce it here. The flowers are large, and they expand to the fullest extent. The styles and standards are coloured blue, the former being variously cleft in different flowers; the falls are of a deeper shade of blue, with a pale yellow patch in the centre of the blade, the patch being mottled and spotted with blue, the dividing colour being pale lavender. *I. histrio* can be grown in a cold frame, or a sheltered portion of the garden, such as a border beneath a wall; it flowers in early January, and many plants flower with *I. alata* in December. It is best grown in pots, plunging these in the open border till the flower-sheaths appear, when they may be placed under glass to flower, returning them to a cold frame afterwards, and thence to the open border again, as the weather proves suitable. If the plants have made considerable leaf-growth when rough weather sets in, they should be protected with a few bushes, with a mat thrown over them. It is a native of Palestine.

I. Vartani.—I have not seen this plant outside botanic gardens, and suppose, therefore, that it is not popular; it flowers in winter. The flower spans 4 inches, is dull lilac in colour, with a few purplish spots on either side of the yellow ridges of the "falls." The styles are markedly bifid and erect, so as to resemble standards. It needs the protection of a cold frame or hand-light, as the leaves—which are similar in shape to those of *I. reticulata*—are liable to injury from frost. It is a native of Palestine.

I. Kolpakowskyana is another species apparently confined to botanic gardens. It has small, wavy flowers of lilac colour, the blades of the "falls" alone being deep purple, with a greenish-white blotch surrounding a yellow median line. Were it not for the intense purple "falls," the colours would be called washy. The leaves are channelled and roundish, as in *I. xiphioides*. Like *I. Vartani*, it needs a frame to do it well, and, compared with others, it is short-lived under cultivation. It comes from Turkestan. *Geo. B. Mallet.*

(To be continued.)

NOTES FOR NOVICES.

BUDS.—This is the best period of the year for the examination of the "winter-buds." Why winter-buds? Because they are formed in autumn to resist the winter's cold. They consist of enveloping bud-scales, leathery, hairy, gummy, or otherwise adapted to protect and secure from injury the dormant shoots, leaves, and perhaps flowers, within.

As the summer's growth comes to an end, the lengthening of the shoots between the leaves ceases, bud-scales are formed instead of fully developed leaves, and we get the young compacted organs into a tight ball within the scales. As the temperature increases in spring, the period of dormancy is succeeded by one of great activity; the tree which was as a skeleton of brown twigs now becomes a sheet of verdant foliage, or a brilliant mass of white or coloured flowers. A bud then is nothing more nor less than the tip of one of the last year's shoots, modified and adapted to withstand the severities of the winter. Its scales often pass gradually into leaves, as may be seen in the Maples, in the Horse-Chestnut, or the Gooseberry and Currant. Very interesting are these intermediate stages. The buds are, some entirely composed of leaves, some wholly consist of flowers, some are a mixture of both. Already it may be seen how important it is to recognise the nature of the buds, else, in pruning, the parts you wish to conserve may be cut away, and you may be left with a forest of twigs that you do not want.

The whole basis of pruning and disbudding rests on the nature and position of the buds, and on the reasons you have for pruning at all. You may materially increase your crop and improve its quality by judicious pruning; you may ruin it altogether by a careless or ignorant use of the knife. You may have a shapely tree of regular growth and symmetrical form, or you may have a wretched mutilated stump which is all that many Londoners have to represent to their mind a tree.

The very first essential in learning the art of pruning, is to ascertain the nature and position of the buds in the tree you are about to operate upon. The books will tell you how the buds of the Pear, or of the Peach, or what not are arranged. We shall not go into that matter here, all important though it be, and for this reason that the buds themselves now tell their own tale to anyone who has eyes to see, far better than any book could do.

There is one point in particular to which attention may be called—the variation in buds; there are no two buds on a tree, any more than there are two leaves, exactly alike. It is for the novice to study those differences, and to turn them to account. Nature is prodigal of hints and suggestions, it is for the worker to utilise them. The bookman may read about them, but it is the man who has his knowledge, as it were, at his fingers' ends that makes the good gardener or forester.

A very instructive bud-study is just now afforded by the beautiful Forsythia suspensa. Sometimes but rarely it has but a single bud in the axil of the fallen leaf, whose traces can be seen by the scar it leaves when it falls. At other times there are four or five, or as many as seven buds, all crowded into one axil. If we suppose one bud to represent one shoot, and one such shoot to represent a season's growth, then we have in the multiple buds, the work of two or three seasons' growth produced by anticipation as it were in one season. The advantages of such a plurality of buds may be guessed at. If the primary bud gets injured, there are others at hand to supply its place. Do circumstances require the plant to present a more or less inextricable thicket of branches in one place, and long extension shoots in another, the Forsythia is well provided for both contingencies.

Another illustration of the diversities in buds is furnished by the Chrysanthemum, though here we are dealing with an herbaceous perennial, and not with a perennial shrub or tree, and there is, of course, no true winter bud; but there are lateral buds without enveloping scales, and there are terminal buds, the terminal bud in botanical language being that one which terminates the stem, though it may be the first that is formed. Chrysanthemum-growers use the word "terminal" in another sense, and apply it to the bud which is formed latest. They recognise the difference between buds that are surrounded by leaf-buds and those that are encircled by flower-buds. They know how different may be the product from the two kinds of bud, and they

"take," that is they reserve the bud that they require, and remove the others.

A "sport," in the proper usage of the term, is a bud which for some reason or other, at present unknown, suddenly develops into a shoot bearing leaves or flowers of a different character from the majority. Two circumstances in particular excite our wonder at these sports: 1, the suddenness of their appearance without perceptible cause; and 2, the fact that the same sports, or rather some just like them, appear on other plants of the same species at the same time in widely separated countries. Does a particular sport occur say on a

determined; possibly not, but at present, and for a time, their employment will doubtless extend. There can be no question of their effectiveness, particularly the Cockscomb, which provides not only a form distinct from that of any other flower, but also numerous tints which enhance its value. One drawback the Cockscomb labours under, which will put a limit to its employment, is the susceptibility of the plant to cold, a susceptibility continuing in the North till the summer has well advanced; though, once established, Celosias and Cockscombs alike bear cold in the autumn without injury. Moreover, the plants

was also tried. The former, as examples, were dotted among *Linaria bipartita aurea*, and along with Countess of Aberdeen *Fuchsia* among Harrison's Musk. Rose-coloured Cockscombs in like manner grew out of a mass of Wave of Blue *Lobelia*; crimson-coloured ones on a groundwork of *Tropæolum peregrinum*, and a variety of colours among the variegated Winter Cress. These are all uncommon combinations, and they were all pretty, while in no case would the failure of the plants under discussion have been an eyesore. Their propagation and preparation present no difficulties. The best time to sow is in the early half of March; certainly not later than the middle of the month, and though in the early stages stove temperature is needed, it will be obvious that a slow, firm growth should be aimed at in preference to rapid, sappy growth. Celosias require rather more care than Cockscombs whilst small, but both as soon as they are large enough to be handled easily, should be pricked out into cutting-boxes in a compost of light loamy soil. In the month of May the plants should be strong stuff, requiring 4 and 5-inch pots; and unless specially big plants are desired, these will be sufficiently large for them till the flowering stage is reached. The Celosias succeed if grown-on in a warm pit; but once the Cockscombs are well established, or in June, these will succeed perfectly in a cold frame, care being taken not to afford over much water, or to check the plants by excessive ventilation at the first, though as soon as genial weather arrives, the sashes may be advantageously removed during the greater part of the day. Flowering will commence in July, and towards the end of that month the plants may be safely planted out. They enjoy a well-enriched soil, and if the weather be dry, should be moistened overhead and at the root a few hours before being planted. If the weather continue hot and dry, water must be continued to be applied twice or thrice a week until rain renders its further use unnecessary. A little dissolved superphosphate of lime, or farmyard or other manure-water, at every third application do good in giving vigour to the plants, and brightening the colour of the flowers.

With Celosias, the greatest difficulty is in procuring seeds of first-rate varieties. I have not been able to secure a good bright yellow form, such as one sees in some of the London parks. The finest crimson is, I think, "*Triomphe de l'Exposition*," the habit of which is pyramidal, not plumose, and the stems and foliage are also coloured more or less intensely. It is, however, a commendable practice to purchase good strains, and select the best forms for seed.

The best Cockscombs are the dwarf varieties, of which there are nearly a dozen; but in addition to self colours, there are varieties with yellow edgings to the combs, and also a strain which breaks into a number of small crested heads.

The "plumes" of Celosias, it may be added, are useful during the winter, as they retain their colour when dried. *B., Tynninghame, N.B.*

ALPINE GARDEN.

VARIETIES OF *SCILLA SIBIRICA*.

ONE often wonders at the length of time which elapses before we hear of any break from the ordinary colour of certain flowers, although others which belong to the same genus may have previously given several well known varieties. The Siberian Squill is one of these plants; since its introduction in 1796 it has been largely grown, yet it is only within the last few years that a white variety has come into the market. This seems remarkable if we contrast it with the sportive character of our native Squill, or *Scilla campanulata*, or even with the pretty *Scilla bifolia*; as is well known, these give us some variety of colour. *Scilla sibirica* seeds as freely as these, and thus affords an opportunity of improvement in colour and form. The introduction of *Scilla sibirica alba*



FIG. 69.—*ODONTOGLOSSUM TRIUMPHANS* VAR. *RAYMOND CRAWSHAY*.

(REAL DIAMETER $3\frac{1}{2}$ INCHES.)

A fine yellow ground flower, with big, bold patches of a rich brown tint, shown by De B. Crawshay, Esq., Rosefield, Sevenoaks, on the occasion of the meeting of the Royal Horticultural Society on March 27 last, when the variety received an Award of Merit.

Pelargonium in an English nursery, we are not long before we hear of the occurrence of a like phenomenon in Belgium or Germany.

These hints as to the wonders of buds may induce some to examine the buds for themselves. They can scarcely have a more interesting or a more instructive occupation. *S. Rettsam.*

CELOSIAS AND COCKSCOMBS IN THE GARDEN.

SINCE these plants were first employed in the flower-garden, they have gained in importance. Whether, however, their position in the summer flower-garden will become permanent cannot be

must be cultivated practically as pot-plants, and not till they are nearly full grown and in flower can they be safely transferred to the open ground.

The question that most gardeners in Scotland will ask is, are they worth the trouble? For my part I think that they are. But I would not advise the planting of beds or groups with these plants alone, as may safely be done in the warmer South. In order to provide for contingencies, first of all plant out some kind of plant which can be depended upon to fill its position effectively should the others fail, and employ Celosia and Cockscomb flowers largely as accessories.

I have made use of Celosias for several years in this way, and last year a variety of Cockscombs

a few years ago ought to bring home to the minds of seedling raisers that this *Scilla* is capable of producing varieties which would be of service in our gardens. I was aware that *S. sibirica alba* had been sent out from Holland, and that it had found its way into the market on the dispersal of the nursery which possessed the stock. It was only the other day that I learned, through the columns of a contemporary, that its discovery was due to the observation of one through whose hands the bulbs were being passed, and who noticed that one had a satiny-white "skin." This is a warning to others to keep watch for such apparent trifles. This white variety is an acquisition, though less robust than the typical blue form so well known. Mr. James Allen has been working upon *Scilla sibirica*, and some time ago secured a variety with flowers which are arranged in stripes of white and pale blue. This he calls *S. s. marginata*. I have had an opportunity of growing this for two or three years, and have been much pleased with it. It is very distinct; and, what is more, is very pretty. The only other well-marked variety I have here, with the exception of the early-flowering subspecies, or variety, known as *S. s. taurica*, is a very dark-coloured form, known to some of us as the Rev. Dr. Paul's dark-blue variety. It was selected by Dr. Paul; it is considerably deeper in its colour than the ordinary type. [Is not *taurica*, hort., a form of *bifolia*? Ed.] I observe that *Membra Krelage* offer a variety named *pallida*. I do not think that the prospect of obtaining a pink variety is now very remote. Much as I admire the pretty varieties of *Scilla bifolia*, one would yet welcome a variety of *Scilla sibirica*, with flowers of a similar colour to those of *S. bifolia rubra*, or even the less attractive *S. b. carnea*. I hope this note may help to induce some ardent seedling-raiser to give some attention to the Siberian Squill.

ERANTHIS CILICICA.

As one who has grown this *Eranthis* for some years on a small scale, I have been interested to see your remarks upon it in the note on "Spring at Kew," p. 138. It is hardly likely, I think, to supersede the common *Eranthis hyemalis* in the favour of gardeners. Its colour is certainly rather deeper, if that is any advantage, but it is later of coming into bloom, and the involucre is not so pretty as that of *Eranthis*, whose ruff-like frill is not the least of its attractions. So far as my experience goes, I do not think that it is quite so hardy as the common Winter Aconite. It has not been very plentiful up till now, but I think M. Siehe has sent it in quantity lately. The Winter Aconites are so modest and unassuming in their ways that one is glad to observe that this comparatively new member of the genus is becoming known. It will, perhaps, bring our older "Winter Wolf's Bane" a little more into notice. *S. Arnott, Carsethorn-by-Dumfries, N.B.*

THE WEEK'S WORK.

THE FLOWER GARDEN.

By J. BENLOW, Gardener to the Earl of Ilchester, Abbotbury Castle, Dorset.

Arundo conspicua, and *Eulalia japonica* and other Varieties.—These plants form fitting companions to Cortaderias, and afforded the same conditions—division of roots, and same time of planting—will flower freely, and grow equally well. Both are hardy, and do as well with dry treatment as in wet soils. In the colder parts of the country, an excessively wet situation should be avoided, otherwise the plants might succumb in the winter season. *Arundo conspicua* has the same luxuriant growth as the Pampas-grasses, but the inflorescence is smaller, and it produces them in the months of August and September. *Eulalias* may be divided at this date; they are well suited for planting in sheltered positions. The plumes when removed from the plants endure for a long period of time, and large

specimens will produce many dozens of them. The *Eulalias* act as vegetable out-door barometers, the racemes closing tightly on dull days; and on sunny dry days the individual flowers expand, and show a pretty contrast of silvery-white and green. *Arundo Donax* and the *Aralias* make capital lawn plants near the mansion.

Water Culture of Richardia ethiopica (White Arum).—The plants should now be prepared previous to planting them in their permanent places in water. Those in cool-houses may be removed to temporary shelters under a south wall, or to unheated frames that will contain them without crushing the foliage. This hardening of the foliage is essential, but it should be done without incurring risk from frost. Plants that have been forced will need to be hardened more gradually. Arums may be grown with success in ornamental ponds fully exposed to the sun, and which possess rising banks on the west and north-east. In the absence of such banks, some thickly-planted shrubs would prevent cold and gusty winds, which would break over the chalice-like flower-stalks. In water it is not always easy to afford them support. Open the drains or sluices and allow the pond to lie dry for a week. This done, take out in the shallow places, under the northern bank or sheltered end, holes 3 feet across, and 18 inches deep. The holes should be filled with a compost of three parts good turfy loam, one part cow manure, and a proportion of lumpy charcoal and coarse gritty sand. For weighting the plants and keeping them steady, middle-sized pieces of porous rock are useful. When danger from frost is past, the hardened-off plants may be turned out of their pots and planted on the slightly-raised mounds of soil. The plants must be submerged at a sufficient depth to prevent the freezing of the hearts or crowns of the plants. This is most important. They luxuriate here in running water planted at 8 to 10 inches below the surface, and where a little silt occasionally enriches the soil about the roots—although I have stood up on ice where these are growing. In snug corners of still ponds they should be planted deeper, 10 inches to 1 foot, as running-water is warmer. A colony of these showy plants may be soon established in warm counties, if the right spot be chosen, and attention given to the few details above enumerated.

Convolvulus Oneorum and C. mauritanicus.—Cuttings of these showy rock plants may now be taken. The former is the hardier, and is best propagated by side shoots taken off with a heel attached. These may be dibbled in fine rich sandy soil, in well-drained pans. Or the plant may be grown from seeds. Place the cuttings and sown seed in a temperature of 65° to 75°, and shade from bright sunshine. *Convolvulus mauritanicus* may be readily increased now by root cuttings. Dig up old plants or shake them out of the pots, and remove some of the thick whitish roots similar to those of the Common Bind-weed. Those that possess a growing point will make the best cuttings, but portions may also be cut in pieces from 3 to 4 inches long, and laid in pans, covering them with fine earth.

Bedding Plants that are making sturdy growth, and have plenty of roots, as *Pelargoniums*, *Lobelias*, *Dahlias*, &c., must now be cleared of green-fly, by fumigating. They will soon need to be removed in order to harden them. There is yet time for increasing *Alternantheras*, &c., on brick hot-beds, but no time for delay. *Celosia pyramidalis* may now require to be repotted, and should be given every encouragement to grow.

General Remarks.—Prune Evergreens, using a knife for Laurels and such other plants that have such large foliage. For hedges of Evergreen, Oak, Yew, *Eunonymus*, that are regularly trimmed, a pruning hook or sickle is more generally adopted.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen, S.W.

Lælia anceps, and its varieties, having recovered from the effects of flowering will soon make new roots, and any renewal of the surface materials, or repotting that may be necessary, should now be done. Their habit necessitates the use of rather large receptacles for these plants, or the rhizomes soon extend beyond them. This, in itself, is not detrimental to the plant, as the roots appear to thrive better in the air than in the material, but

as a matter of convenience it is not desirable to a large extent. In cases where the growths have extended some distance beyond the receptacle, they may be cut off and "made up" into other plants, leaving the original *in situ*, the dormant eyes of which will break away and in time produce as good a specimen as before. This species delights in abundance of light and air, and the plants should therefore be suspended in baskets, which are preferable to heavy pans. In the bottom of the baskets lay a few large pieces of crock, and afterwards arrange the plants so that the growing points are towards the centre; work in more crocks and lumps of fibry peat amongst the roots, introducing a few patches of moss here and there on the surface to be a guide when contemplating giving water to the plant. The subsequent treatment for a month or more will consist in keeping the materials moist, and the longer the plants can be kept from making new growths the better will be the prospect of obtaining flower-spikes. The temperature should be proportionate to that prevailing outside, rather than a stated degree maintained by fire-heat, so long as it does not recede below 55° at night. Admit air whenever the outside temperature is above 40°, increasing the volume as the external air becomes warmer. Shading should only be employed in strong sunlight, and be of a very thin description.

Lælia majalis is a lovely species, though somewhat shy to flower, a peculiarity due in a great measure to insufficient ripening of the pseudo-bulbs. Just now the plants are making growth, but there is little root-action, hence, although atmospheric moisture is essential, little water should be given the roots. When the roots will be more active the surface material may be renewed. Position, temperature, &c., should be the same as recommended for the preceding species. Fix newly-imported plants on blocks, with a little peat and sphagnum-moss intervening; or plant them in baskets, according to the shape of the specimen to be treated. In the latter case, a very thin layer of peat and sphagnum-moss should be placed over the drainage. As with established plants, little direct watering should be done until root-action is free. The flower-buds appear in the growth when the edges of the leaf separate, are rapid in development, and when decayed the new bulb is almost complete in size. Good results usually follow the placing of the plants outside during the summer months, where full exposure to the sun and air can thoroughly ripen their succulent bulbs. Ample supplies of water, however, must be given.

Other Mexican *Lælias*, such as *L. alba*, *L. autumnalis*, *L. furfuracea*, *L. Gouldiana*, *L. rufescens* (*peduncularis*), &c., are still resting and need very infrequent watering to keep them in a sound condition.

Lælia harpophylla and *cinnabarina*, now in bloom, should be induced to rest for some time afterwards by withholding water from them, so far as this can be done without reducing the solidity of the bulbs. The latter species require a Mexican-house temperature, &c., but the first-named will thrive under much cooler conditions.

PLANTS UNDER GLASS.

By T. EDWARDS, Foreman, Royal Plant Gardens, Frogmore.

Stoves.—The regulation of the growths of *Stephanotis*, *Dipladenias*, *Ipomæas*, &c., growing on the roof must now have attention, training the shoots if possible on separate wires, so as to fully expose them to the sun. Where required in quantity as cut blooms, *Stephanotis* should be planted out in a well-drained bed of turfy loam and peat mixed with broken bricks, sand, and a sprinkling of ½-inch bones. For draping tall vases, and trailing on dinner-tables, shoots cut from the plants 4 to 6 feet in length form natural wreaths of flowers lasting a much longer time than single trusses of bloom. Such shoots should be trained on twine, which is readily detached. The same holds good of the growth of plants grown in pots, the twine being brought close to the roof-glass. They can be trained on wire trellises after the bloom shows. Specimens of *Bougainvilleas* should also be allowed to grow away freely from the support, and to be tied into shape when the bracts form. The same kind of treatment applies to *Allamandas* and *Rondeletias* growing in pots.

Cyanophyllum magnificum and *Sphenogyne latifolia*.—The two plants may now receive their

final potting into 10-inch pots, using a compost consisting of three parts peat, one part turfy loam, and one part sand, these being well mixed. Both plants should be raised annually from cuttings. Grow them rapidly to single stems, and apply shading whenever the sunshine is bright, a mat in addition to the usual blind being placed over the plants.

Poinsettias.—About one-third of the old stock plants may now be started with moderate heat, affording them water very sparingly, and syringing them occasionally. When the new shoots are about 3 inches in length, remove the stronger with a heel of old wood, and place them singly in 60-pots filled with turfy loam and sand; and plunge the pots in the propagating-house or frame, never for a moment allowing the foliage to flag. The earliest cuttings always furnish the largest bracts. The final repotting takes place in an 8-inch pot. For succession, cuttings may be taken from plants started at the end of the month or in May. The cutting-pots should be filled with finely-sifted loam, mixed with plenty of sharp sand, affording good drainage.

Caladiums.—Repot in larger pots before the roots get matted together. If large masses are required, put four to six plants of one variety in one pot; and as a potting mixture use peat, turfy-loam, and leaf-mould in about equal proportions, and in a roughish state.

Tuberose.—Tubers may now be potted in 5-inch pots for autumn and winter flowering, and be placed on a bed of coal-ashes in pits, safe from frosts, and kept quite dry until growth commences. During summer stand the plants outside, and syringe them freely in order to keep down red spider.

Herbaceous Calceolarias are gross feeders, and will be benefited by alternate doses of liquid-manure and rain-water. Attend to staking, and fumigate or vaporise them every second or third week. Keep quite cool and shade during sunshine.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain BOLFORD, Westonbirt, Tetbury, Gloucestershire.

State of the Soil.—The weather of the past month has acted, on the whole, very beneficially upon the soil, the comparatively small rainfall and drying winds having helped to pulverise the most stubborn soils, and enabled the gardener to make his sowings of Onions, Parsnips, and other vegetables in good time. Whilst the surface remains dry, the hoe should be used freely, in order to kill weeds and aerate the land. Plots occupied by fruit-bushes and other permanent things should be cleared of Chickweed and Groundsel before these troublesome weeds flower, and the land lightly dug with the spade.

Cucumbers in Frames.—Plants raised from seed sown in early last month are now ready for planting in hotwater pits or common frames. Hotwater heated pits and frames are undoubtedly more trustworthy for affording a certain and regular supply of Cucumbers, although, with a considerable amount of labour, dung-heated ones can be made to answer. [The directions for making the beds, planting, and general treatment will be found in the Calendar for "Fruits under Glass." Ed.]

Beetroot.—If an early supply of Beetroot is required, seed of Sutton's Globe or Egyptian may now be sown, to be planted out of doors in May. The first named variety surpasses the Egyptian Beet in goodness of colour. For the main crop of Beets, early in the month of May is quite soon enough; still, a small area may be sown at this date, the roots coming into use between the first and latest crops. For this sowing a cool site, and a soil in good heart but not recently manured, should be selected. Sow the seed to the number of three in a patch in drills made 2 inches deep on an average soil, and 15 inches apart.

The herb border.—A new border, or a thorough renewal of the old one by adding new soil to it, should be made every three years, the stocking of it being done with young seedlings or plants raised from slips and cuttings. Cuttings of all kinds of Thyme may be struck at this season under hand-lights, and these, when transplanted, form nice plants by the autumn. Sage lives much longer than most other kinds of pot-herbs, and a certain number of the plants should be cut-in early in the present month; but if the bushes are aged, slips

should be taken two months hence and inserted where they are to remain. Sweet Basil, Bush Basil, Chervil, "Pot" and "Knotted" Marjoram, all useful herbs, should be raised from seeds sown in pans or boxes under glass, and when large enough the seedlings pricked out in the herb border; or in cold parts of the country the more tender of these should be grown in frames and pots. Fennel is a herb in little demand, and should be raised from seed.

Forcing.—A liberal amount of air should be afforded Peas in pots, and to such as are planted in frames, and occasionally weak manure may be applied when the pods are forming. The plants of French Beans in bearing should have the useable pods gathered every third day or they will be hard, and the strength of the plants soon exhausted. French Beans may be tied up in bundles of fifty or sixty, and placed in saucers of water in a cool place; they will keep fresh for many days.

FRUITS UNDER GLASS.

By J. ROBERTS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Cherries.—After flowering is completed, there follows a critical period for forced Cherries, and any attempt to hurry them with high temperatures will end in failure. Moderate temperatures must prevail until the stoning process has been completed. Use fire-heat only to prevent the temperature falling below 40° to 45° at night, and to maintain it at 50° during the day. Keep a little ventilation on during dull weather, both night and day. In hot, sunny weather, the freest ventilation must be given, and at no time should the temperature be higher than 65°. If it cannot be kept as low as this by other means, a slight shade may be used during the hottest part of the day. Allow the house to cool down to 55° to 60° before closing time. Keep the roots uniformly moist. After this stage is reached the young growths will need attention. Cordon-trained trees will need little except the stopping of side-shoots at the third or fourth leaf, allowing the leaders to grow unstoppered until the trellis is covered. In the case of fan-trained trees lay in young wood where necessary to furnish the tree, and stop all other shoots so as to induce the formation of fruit-buds. With the development of the foliage, grubs generally put in an appearance, and the trees must be hand-picked to get rid of them. A syringing given twice a day will refresh the trees, and assist in keeping them cool.

Peaches and Nectarines.—In the earliest house stoning will now be complete, making it safe to carry out the final thinning. In doing this, select those fruits as much as possible which turn their apex to the light; these usually finishing most satisfactorily, and give the least trouble in exposing them to the sun later on. After the stoning, a rise in the degree of warmth may be allowed, viz., 65° at night and 70° to 75° by day; and let the house be closed early in the afternoon, the temperature with sunheat being allowed to rise to 85° to 90° during the remainder of the day. Trees growing fast will require frequent attention in stopping and training, care being directed to the pinching-out of the points of the strong, sappy shoots, which interfere with the equal distribution of the sap; and sometimes these shoots may be entirely removed. The growing shoots which will be the bearing-shoots of next year, should be early tied to the trellis, affording them full exposure to the sun so as to get them ripened thoroughly. The strain on the energies of a tree during the formation of the seed is great, and should be met by affording liquid-manure frequently; and if the border is in good condition, a good application of water once a week will not be excessive now the trees are in full growth.

Later houses.—In these houses work is daily on the increase, the chief of which are disbudding the shoots and the thinning of the fruit. Disbudding should be performed by degrees, leaving in every case a shoot at the base of the bearing one, and on the upper side by preference. Young trees that have not quite covered the trellis should be disbudded so as to leave shoots 18 inches apart on the main branches, and in a manner similar to that pursued with old trees on the lower part of the trellis already furnished with bearing wood. The thinning of the fruits may be carried out as soon as the petals drop, allowing at least double or treble the number of fruit required for making a full crop

In the Peach-houses green-fly should never be permitted to gain a footing, and vigorous syringing twice a day will be necessary to keep red-spider in check.

Melons.—Daily attention must be given to impregnating the flowers, and stopping all fruit-bearing growths at one joint beyond the fruit. Always allow a few more fruits to remain than will be required for a crop, and those finally selected should be those found at the extreme top, rather than the lower, parts of the plants, the rush of sap being greatest to those parts, causes the fruit to swell and finish properly. During the setting of the blooms, a dried state of the atmosphere and the soil favours the process. Three or at the most four fruits each will suffice for plants standing 18 inches apart. When the setting is safely past, a more liberal treatment should be applied, and the plants should not lack water at the roots before ripening begins. Liquid-manure should be freely applied, and a gentle syringing afforded when the house is closed, excepting in dull weather when it may be omitted. Keep up a temperature of 70° to 75° at night, and 10° higher by day. Close early on the afternoon of sunny days, and ventilate cautiously when cold winds prevail, and the weather is changeable.

Strawberries.—Where a continuous supply of fruit is desired, a system of forwarding the plants must be maintained. At this season, cold frames and pans may be utilised for starting the plants, a transference to warmer quarters taking place when the earlier forced plants are removed from those. Wherever placed, the plants should not lack water at the root, and all plants still plunged in frames should be kept moist. Plants in fruit standing upon shelves, and fully exposed to the sun and air, should on no account suffer from dryness at the root for water, dryness under such conditions rendering the fruit hard and seedy. Thin the fruits on succession plants; and after this date thinning may be carried out on the flowers. Ventilate with care whilst cold winds are blowing, or mildew may appear on the leaves and fruits. An occasional syringing with a mildew specific, when the fruit is swelling, will help to keep it clear during the ripening period.

DEPARTURE OF LADY ROBERTS.—On the occasion of the departure of Lady ROBERTS, the Duchess of TECK, and other notabilities for the Cape on St. Patrick's Day, the floral decorations for the *Dunottar Castle* were entrusted to T. A. DICKSON & Co., Court Florists, Covent Garden. Lady ROBERTS' deck-saloon was decorated with pink Roses and Lily of the Valley; the walls were draped with Myrsiphyllum and Shamrock, and in one corner was a large Irish harp of Shamrock and green Orchids. The Duchess of TECK's boudoir was arranged with Myrsiphyllum and Cattleyas; two large floral Union Jacks were hung on the walls, and bouquets of Duchess of Teck Roses were placed on the tables. The brass rails, pillars, and mirrors around the music-room were festooned with Smilax, Shamrock, and pink and crimson Roses, and a large floral Union Jack hung over the dining-saloon. Lady ROBERTS' and the Hon. Misses ROBERTS' cabins were decorated with Shamrock and Parma Violets, pink Roses, and Lily of the Valley. On each side of the port in the Duchess of TECK's cabin hung medallions of the Union Jack surrounded with Shamrock, the port being decorated with Shamrock and Parma Violets. The whole of the ship's company were provided with Shamrock to wear in honour of Lady ROBERTS, whose birthday occurs on St. Patrick's Day.

"THE CHEMIST'S ASSISTANT."—Few in like position have more need of assistance than the chemist's assistants. They have long, sometimes very long, hours of work; more is expected from them both in ability, knowledge, and in outward show than is the case with most other trades, and most of them aim to be members of the Pharmaceutical Society, which entails a course of study. A journal with the above title has been started to further their interests, and we wish it all success. It is published at 19, Thavies Inn, E.C.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, APRIL 10. { Royal Horticultural Society's Committee, Meeting.
Manchester Royal Botanic Society's Spring Show.
Manchester Orchid Society, Meeting.

WEDNESDAY, APRIL 11. { Royal Botanic Society's Exhibition, at Regent's Park.
Royal Horticultural Society of Ireland, Exhibition.

SALES.

MONDAY, APRIL 9.—Roses, Lilies, Spiræas, Gladioli, and other Bulbs, at Protheroe & Morris' Rooms.

TUESDAY, APRIL 10.—Established Orchids, at Protheroe & Morris' Rooms.

WEDNESDAY, APRIL 11.—Great Sale of Lilies, Palm Seeds, Tuberoses, Greenhouse Plants, &c., at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—46° F.

ACTUAL TEMPERATURES:—

LONDON.—April 4 (6 P.M.): Max. 56°; Min. 37°.

PROVINCES.—April 4 (6 P.M.): Max. 50°, Greenwich; Min., 38°, Shetland.

"Hand-list of tender Dicotyledons."

THIS is another of the very useful hand-lists for which we have to thank the authorities of the Royal Gardens, Kew. It may be said to be a list of stove and greenhouse plants, with the exception of Orchids and other monocotyledons which have already been dealt with. The present list contains 5000 species, whilst AITON'S *Hortus Kewensis* (1789) comprised only 1000, and the second edition 2500. The list is in alphabetical order; each genus is referred to its natural order, and to each species is added the name of its author, and an indication of the country of which it is a native. In some cases reference is made to illustrations that have been published. To this technical enumeration, which is only serviceable for reference, is prefixed a very interesting and readable preface from the pen of the Director, Sir WILLIAM THISELTON-DYER.

This preface comprises general remarks on the introduction and cultivation of such groups as Australian plants, Cape plants, Himalayan Rhododendrons, Begonias, Succulents, Stove plants, Insectivorous plants, and Aquatics.

On comparing the old lists with the present one, it will be seen that in the case of some genera the numbers of cultivated representatives has diminished. Some of these plants are intolerant of cultivation, and even did better in the old-fashioned flued-houses than in those of more modern construction. Some of these are not easy to replace now, as the areas whence seeds and plants were then obtained are now devoted to agricultural purposes, and the native vegetation has been driven out.

Details are given as to the collectors by whose zeal and enterprise the plants were introduced. Particulars are also given of the different houses

which have from time to time been assigned to the cultivation of particular groups, and in this way the elements of a complete history of the structures at Kew are provided. To those who have long been familiar with the gardens, this historical sketch is very interesting, and recalls old scenes which, amid the many changes that have taken place, might be forgotten. It may be interesting to note that Cape Heaths, and many representatives of the dry South African flora, may now be seen in No. VII., which forms part of the T-range.

The temperate-house, the extreme length of which is 628 feet, by 161 feet in width, covers an acre and three-eighths, being three times bigger than the conservatory at Chatsworth. It is divided into a centre, two octagons, and two wings. In the centre block New Zealand and Australian plants predominate. The south wing is devoted largely to Mexican plants, and to plants which require a warmer temperature than the central part of the building allows of. In this wing the plants are planted out, and the growth has been most satisfactory. The Himalayan Rhododendrons occupy the north wing which is unheated, and here they are associated with Camellias, Bamboos, and other Indo-Chinese plants. Many specimens were presented by Mr. Shilson of Tremough, whose father was one of the first to avail himself of the opportunities afforded by the introduction of these plants by Sir Joseph Hooker. The Southern octagon is devoted to Orange trees in tubs, the northern to bays and Chrysanthemums in their season.

Begonias are well represented in the T-range. Succulents occupy the long Succulent-house, No. v., which is 200 feet long, 30 feet wide, and 15 feet high. It is one of the most striking and interesting if not the most beautiful collections in the garden. Ornamental stove plants find a place in the Palm-house in No. i., nearest to the great gates by Kew-green, and parallel with section ix. of the T-range, is the new Nepenthes-house, 70 feet by 12 by 9½ feet, where the plants are evidently "at home." Aquatics are provided for in the Victoria-house, and in No. xv. near the Palm-house, and in a pond near the Pinetum, the water of which is heated with condensed water from the steam engines at the waterworks.

Kew has taken a great share in the culture and distribution of "economic plants," and has thus amply justified its existence by the benefits it has conferred on humanity. Representatives of these plants may be seen in Nos. xi. and xii. of the new T-range, as well as being distributed in other houses. The brief account of the share Kew has taken in the collection and distribution of Cinchona, India-rubber, Coffee, and other tropical plants, should be consulted, especially by those who look on Kew solely as a place of recreation, and on botany as simply a study of flowers.

The hand-lists, to one of which we have now alluded, will constitute a complete "Hortus Kewensis," and will be of the greatest service to cultivators.

Fringed Cyclamens.

CONSIDERABLE interest was manifested at the last meeting of the Royal Horticultural Society in the frilled Cyclamens exhibited by the St. George's Nursery Company of Hanwell. The comments of the visitors, as we have already remarked, were singularly varied, but as a rule it may be said that the general public was decidedly interested, that the specialists were not favourably impressed—but that the students

and botanists looking to the future were delighted at this illustration of evolution which seems full of promise. The leaves were as to their margins lobed in a threefold degree, the lobes oblong obtuse, and the tertiary series or ultimate lobules of varying size, and sometimes raised on a short stalk as happens so often in Ferns, and which suggests the possibility of rapid propagation by means of these leaflets. At any rate we trust the experiment will be made by laying the leaves on the surface of damp soil in a propagating-case or beneath a bell-glass.

A race or strain with fringed petals known as the Papilio race, has been known for some few years, it having been put into commerce by Mr. Langhe of Brussels. Naturally when the plants with the frilled leaves were exhibited a few days ago—it was assumed that they had originated from the Papilio strain, or, at any rate, from a race which presented flowers with similar cut edges to the petals, and this assumption was further strengthened by the fact that in the plants exhibited by the St. George's Company, both flowers and leaves were frilled. Nevertheless we were assured that the frilled-leaved varieties originated from plants with an unbroken edge to the petals. The peculiarity having been observed, was fostered by care and rigid selection, so that after an interval of about eight years the plants assumed the appearance of those which were exhibited at the last meeting of the Royal Horticultural Society.

In general it is the business of a shoot to branch, whilst the leaf, particularly of Cyclamen, shows no such tendency. Now, here we are met with questions which at present we cannot solve. Why—all of a sudden, does a plant sport in this way? it cannot be from the action of the environment, for the plants are all grown under the same conditions, and only some of them present these changes. If it is done to secure a greater area of surface for respiratory or transpiratory purposes, how is it that the other plants do not manifest a similar tendency? These are questions which we cannot answer. The tendency of the leaf to branch is not very uncommon. The Fern-leaved Chinese Primrose is one illustration. Curled Parsley no doubt originated in this way, and has been preserved by repeated selection, so have Borecoles and Kails. Ferns are notorious for repeated subdivision of their fronds, whilst one of the most remarkable instances of the kind occurs in *Anemone japonica*. In the Tomato also we have seen parallel instances. Another point which should not be lost sight of is, that *Cyclamen latifolium* (commonly but erroneously called *persicum*) is a pure species which has not hitherto been successfully crossed with any other species. The great range of variation it exhibits takes place in a thoroughbred plant, not in one that is a mule or mongrel. It would be interesting to ascertain whether the amount and the range of variation in hybrids or cross breeds, are, as they might be expected to be, greater than they are in pure species. *Primula prænitens* (*sinensis*) is a case where immense variation occurs within the limits of an uncrossed species, and the Chrysanthemums afford other illustrations.

The St. George's Nursery Company has achieved a well earned reputation for the excellence of their strain—the size of the flowers, their regular form, and the purity of their colour. Now they are exhibiting a comparatively new break, and we await with interest its further development.

ROYAL HORTICULTURAL SOCIETY.—At the next meeting of the Committees of this Society, to be held on Tuesday next, April 10, in the Drill Hall, Westminster, special prizes will be offered for Daffodils (see *R. H. S. Book of Arrangements*, p. 58). At 3 o'clock a lecture on "Some of the Plants Exhibited" will be given by the Rev. Prof. G. HENSLAW, M.A.

NATIONAL ROSE SOCIETY.—A meeting of the General purposes Committee will be held at the Rooms of the Horticultural Club, Hotel Windsor, Victoria Street, Westminster, on Tuesday, the

fine trees of the same species still remain, but they have evidently passed their prime, and sooner or later will experience the same fate as the one now laid low. We are not aware whether there is any record of the planting of these trees, which look to have an age of between two and three hundred years.

AGRICULTURAL BULLETINS.—Among the communications that have lately reached us, we notice some useful leaflets for gardeners and fruit-growers issued from the New Zealand Department of Agriculture. Of these No. 33 deals with "Verruosis

Spot caused by Fungi or Bacteria? 5, A *Fusarium* Leaf-spot of Carnations; 6, *Chetomium contortum* on Barley Seedlings;" by F. C. STEWART.

THE "GARDENERS' CHRONICLE," LTD.—We find it requisite to reiterate that the *Gardeners' Chronicle*, Ltd., is a private company, and is wholly independent of any trade interest whatever.

DR. WILSON.—The University Court of St. Andrew's has elected this gentleman to Lecture in Agriculture and Rural Economy in the University.

MR. WILLIAM FAWCETT, Director of Public Gardens and Plantations, Jamaica, has been nominated a member of the Legislative Council of that island.

WATER-LILIES AT GUNNERSBURY.—Mr. HUDSON has constructed in the open air a long, narrow, cemented tank, fitted with a flow and return pipe, and covered with hinged lights. The tank is filled with water, in which are plunged numerous tubes containing a selection of the best Water-Lilies. As the season advances the lights will be removed, but a little heat will still be afforded in order to bring the flowers into bloom early.

INDIAN CORN.—A Japanese correspondent of *Nature* says that in a Japanese Encyclopaedia, published about 1666, there is a woodcut of this plant (*Zea Mays*). Its existence in China was noticed by MENDOSA in 1585, according to BRETSCHNEIDER (*History of European Botanical Discoveries*, p. 10). BRETSCHNEIDER, also at p. 18, cites KEMPFER, though that botanist is stated in the note in *Nature* not to have mentioned the plant.

THE DUKE OF CONNAUGHT AND SHAMROCK.—On his way to the railway terminus, Cork, on Thursday afternoon, March 29, relates the *Cork Daily Herald*, His Royal Highness the Duke of CONNAUGHT called at the establishment of Mr. W. B. HARTLAND, in Patrick Street, and asked to see Mr. HARTLAND. In the course of the conversation that followed, His Royal Highness expressed his appreciation of the gift which Mr. HARTLAND recently made of Shamrock-seed to be sown on the graves of the Irish soldiers who have fallen in the war. The Duke further expressed the great pleasure it gave him to have an opportunity of putting Mr. HARTLAND's very thoughtful suggestion into effect, and said that no one admired the heroism of the Irish soldiers more than he did. The visit to Mr. HARTLAND's was entirely unexpected.

THE FERTILISATION OF PLANTS.—THEOPHRASTUS and PLINY, among the ancients, were aware that the fruits of the Date Palm are not produced till the pollen from the male flowers is shaken over the female blossoms. Other cases of the kind were known, as is evidenced by the following quotation from PARKINSON's *Theatrum* (1640, p. 1649), referring to *Carica Papaya*:—"Mamoera mas et femina, the male Dugge tree . . . The male beareth no blossomes but fruit like unto a small Pompion. . . . The propertie of these trees is said to be that unless the male kinde bee planted to grow near the female it will bear no fruit at all; of which nature a kinde of Date-tree is said to be also." PARKINSON probably got his information from CLUSIUS, but that he had no clear notions on the subject is shown by his stating that the male beareth a Pumpkin-like fruit, and that the male Date-tree is the one to produce fruit. Though there had been more or less plausible guesses before, CAMERARIUS was the first (1691—1694) to prove that "no seed capable of germination could be formed without the co-operation of the pollen" (SACH's *History of Botany*, English edition, 1870, p. 385). This was about fifty years after PARKINSON's time.

SELAGINELLAS THAT ARE SERVICEABLE FOR BOUQUET-MAKING, ETC.—Certain species of Selaginellas possessing long-stalked fronds, are as



FIG. 70.—THE NEW FRINGED CYCLAMEN. (SEE P. 216.)

10th inst., at 2 P.M., to consider the list of the judges at the Crystal Palace show, and transact other business. A meeting of the Committee will be held at 3 P.M. for the consideration of the Crystal Palace schedule, honorary local secretaries, and other matters. H. HONYWOOD D'OMBRAIN, EDWARD MAWLEY, Hon. Secretaries.

THE CEDAR OF LEBANON AT GUNNERSBURY.—We greatly regret to hear that one of the finest Cedars in Gunnersbury Park was wrecked by a recent snowstorm. The trunk of the tree was rotten, and fell over into the pond. It was one of the features at Gunnersbury, and will be much missed by those familiar with the place. Other

of Lemon and other Citrus Trees," and is written by T. W. KIRK, F.L.S., Government biologist. The same authority also has contributed leaflet No. 34, treating of "Two Fungus Diseases of Gooseberry (*Septoria ribes* and *Microsphaeria grossularia*)." From the New York Agricultural Experiment Station, Geneva, we have received:—Bulletin, No. 162, "Leaf-scorch of the Sugar-Beet, Cherry, Cauliflower, and Maple," by F. C. STEWART; Bulletin No. 163, "The New York Apple-tree Canker," by WENDELL PADDOCK; and Bulletin No. 164, "Notes on various Plant Diseases: 1, A Bacterial Rot of Onions; 2, Powdery Mildew on Field-grown Cucumbers; 3, Dodder on Cucumbers under Glass; 4, Is the Baldwin Fruit

well adapted for use in the finer kinds of bouquet work as the *Adiantums*. These are *S. erythropus* major, *S. amens*, a variety of *S. caulescens*, native of Japan and China, *S. bellula* = *S. inaequilifolia* perelegans; *S. Lobbi*, a Bornean species with half-climbing stems from 1-1.20 metre in length. Besides these there are *S. dichroas*, *S. Vogeli*, and the rare *S. Victoris*. This last was discovered in Borneo in 1879, and produces fronds of 1-1.20 metre in length, and a breadth of $\frac{1}{2}$ their length. *Herr Hofgärtner Bayer*, at a meeting of the *K. K. Gartenbau Gesellschaft* in Vienna, Feb. 12, 1900.

PROPAGATION OF MISLETO.—*M. LAURENT* mentions a very easy way of propagating this plant. Take some small branches from the tree (Willow by preference), and which are infected by the parasite; treat these branches as cuttings, *et voilà*. *M. LAURENT's* paper is in the *Bulletin de la Société Royale de Botanique de Belgique*, t. xxxviii., p. 226.

LIVISTONA AUSTRALIS.—A specimen of this Palm, 15 metres in height, and bearing a crown of more than 100 leaves, is now, says the *Revue de l'Horticulture Belge*, in flower in the winter garden of Count KERCHOVE DE DENTERGHEM, at Ghent. It was transplanted in 1898, and placed in a larger tub. During these operations the roots were injured, and a check given to the growth of the plant, as was manifested by the appearance of some ten imperfectly-developed leaves, which speedily became yellow.

APPLES FROM THE ANTIPODES.—Advices are to hand as to the sailing of two more ships from Australia laden with Apples: one, the *Oruba*, with 7000 cases; the other, the *India*, with 16,500 cases. Added to cargoes already reported, these bring up the number of cases consigned to 80,100.

FRUIT FROM THE CAPE.—The Union and Castle R. M. S. Cos. send us particulars respecting the two last arrivals of fruit from the Cape, and from these it appears that we received 3409 boxes of Grapes, 382 of Plums, 300 of Pears, 31 of Peaches, of Apples 87, of Figs 6, and 1 box of Quinces. Respecting the Grapes, we are told that most arrived in a very bad condition, due to the fruit having been gathered in wet weather, and great warmth in closed railway waggons; poor prices were the result. Plums were good, and the fruit sold fairly well. Pears, though small, were good, and sold well. The Peaches went at high prices, being all-round good fruit. Of Apples, we learn these were the first consignments received from the colony—fair sized fruit, of poor appearance, coarse and rough in flavour, with but little juiciness; the cultivation of this fruit evidently needs improving, or they will have no chance with those from Tasmania now on the market. Figs arrived in a worthless condition, and it is doubtful if the shippers have hit upon the right variety.

THE SURVEYORS' INSTITUTION.—The country meeting of the Institution, 1900, will be held, by kind permission of the Lord Mayor and Corporation of Leeds, in the Council Chamber of the Town Hall, Leeds, on Wednesday, April 25, at 11 A.M., when the following papers will be read and discussed:—1, "Leeds, its past and present," by Mr. JOHN HEPPEL (Fellow); 2, "Nuisances and Noxious Trades," by Mr. ARNOLD STATHAM (Associate); 3, "Covered Sheds for Farmyard Purposes," by A. T. WALMSLEY (Fellow); 4, Adjourned Discussion on the paper read by Mr. J. H. SABIN (Professional Associate), at the last meeting, entitled, "The Incidence of Imperial and Local Taxation on Rateable Property." The members will dine together at the Hôtel Métropole, King Street, Leeds, on the evening of April 25, at 6.30 for 7 P.M. Dinner tickets (one guinea each, including wine) can be obtained from Mr. C. H. GOTT, 8, Charles Street, Bradford. The following day will be devoted to excursions to (1) places of interest in Leeds and its vicinity; (2) Bramham

Park and Temple Newsam; (3) York; (4) Sheffield. Members who intend to take part in the Leeds visit are particularly requested to return to the Secretary of the Institution, as soon as possible, the fly-leaf to the circular already issued. The Institution will be closed from Thursday evening, April 12, to Wednesday morning, April 18.

THE AURICULA and its culture cannot be said to be on the down grade, for a Midland section of the National Auricula Society has been formed, and the first annual exhibition will be held on Wednesday, April 25, at the Edgbaston Botanical Gardens, in conjunction with the Exhibition of the Midland Daffodil Society. The Southern Section of the Society will hold its annual exhibition the day previous, on the 24th, at the Drill Hall, Westminster; and so if any growers come south from the Midlands, they will be able to exhibit their plants at Edgbaston the next day. Manchester will no doubt have an exhibition, probably on the 28th, or it may be early in May. Three exhibitions in one week, supposing the Manchester show takes place on April 28, would establish a record; still, as Auricula plants are portable, and can be brought from a long distance turned out of their pots, and the roots bound up carefully in moss, the same individuals will probably be staged at all three exhibitions.

SOME MARCH FLOWERS IN SOUTH DEVON.

IN spite of the month of March being visited with frosts of unusual severity for that season of the year in the south-west, which has considerably delayed the expansion of the blossoms of early spring, gardens have been bright with the hues of many lovely flowers. *Anemone blanda* has been in bloom since early in the year, its later sister, *A. apennina*, opening its first blooms towards the middle of the month, at which time the vivid colouring of *A. fulgens* created spots of surpassing brilliance during the sunny hours. In some gardens this *Anemone* is practically a perennial, remaining in vigorous health for ten years or more when undisturbed; in other less fortunate cases, however, annual lifting is necessary if deterioration is to be prevented. The *Chionodoxas* have provided sheets of blue, *C. Alleni* and *C. gigantea* exhibiting a decided increase in size after being in the ground a couple of seasons. *Clematis calycina*, for some weeks past, has been smothered in its ivory-white blooms, spotted in the interior with purple; and *Colchicum Decaisneanum* has flowered. *Erica carnea* is still bright, and tall bushes of *E. codonodes*, self-sown seedlings, now 7 feet in height, are thickly hung with countless minute white bells. The little *Gagea lutea* is bearing its yellow star-flowers; and the charming *Ionopsisidium acaule*, which has been in flower since January, is a sheet of lavender-white. This pretty little annual reproduces itself yearly from seed in many gardens, spreading rapidly, and never needing renewing. *Iris alata* has been flowering from early in the year up to the present date; and *I. reticulata*, and its larger and finer form, *I. r. major*, were at the zenith of their beauty in the early days of the month.

Of the *Muscarias*, *M. azureum* is the most beautiful in colouring, but *M. moschatum* stands unrivalled—indeed, there are few flowers, either of the open air or the hot-house, that emit such a luscious perfume as this sober-tinted flower. *Nuttallia cerasiformis*, one of our earliest flowering shrubs, is profusely strung with pendent, white bloomed racemes; and *Polygala chamaebuxus*, with its more handsome variety, *P. c. purpurea*, are spreading tufts of flower. The little known *Romulea pylvia*, with its white Crocus-like blossoms, centred with bright yellow, has presented a delicate picture, flowering freely, and proving quite hardy in the south-west. *Scilla bifolia* and *S. peruviana*, both blue and white, are in flower; and the Satin Flower, *Sisyrinchium grandiflorum*

with its chaste, white form, has been in bloom; as has *Sternbergia colchica*, and the lovely Chilian Crocus (*Teophylaea cyanocrocus*), whose blue flowers rival the Gentian in their tint. In a certain sloping meadow thousands of Lent Lilies are in full blossom amid the White Violets which spangle the short sward. Many of these Lent Lilies are double, and a few years since some bulbs producing double blooms were sent to a widely-known amateur for trial in his garden, where they reverted to the single type, but upon their being sent back to their original home they in a few seasons again assumed the double form. *S. W. F.*

NOTES FROM GLASNEVIN.

THESE gardens, under the charge of Mr. F. W. Moore, V.M.H., are a never-failing source of interest. To Ireland they stand in the same relation as Kew Gardens do to England, and from Dublin they are more easily accessible even than is Kew to London. The location is an admirable one, and there being greater undulation in the ground than often in the same amount of space, the effect is most picturesque. The glass structures are not crowded together, yet are sufficiently near to each other for convenience in working.

The Palm-house contains many fine and rare specimens. Of *Phoenix humilis* there is a large, healthy plant, and it is a pity this Palm is still so scarce; *Cyphokentia Lindenii* is another notable plant; so also is the true *Phoenix sylvestris*. Other good specimens include *Areca paniculata*, *Ceroxylon andicola* (the Wax Palm), and *Oreodoxa edulis*, with its tall, slender stem, and plume-like foliage. Associated with the Palms are *Bambusa vulgaris*, towering aloft in its luxuriance, and such large-growing Ferns as *Marattia alata*, and *Angiopteris evecta*, whilst *Anthurium acaule* was represented by a fine specimen. The Tree Ferns to a great extent are cultivated by themselves in a lofty house. There are well-known, and some rare specimens, many of which are possessed of great length of stem, being crowned with fine heads of fronds. They are not overcrowded, and produce a very fine effect.

THE ORCHIDS.

Glasnevin is noted for its Orchids, from the tiniest botanical curiosity to the largest and most showy kinds. The collection in respect to some species is unique. The collection is particularly good in species of *Maedevallia*, notably the small-growing section of this genus. I specially noticed some fine pans full of *Pleione Wallichiana*, *P. lagenaria*, and *P. maculata*; these, and several fine forms of *Cattleya labiata* make a fine display. Of *Vanda Lowi* (*Renanthera Lowi*), there is a very fine specimen bearing six spikes of flowers, the longest spikes being fully 6 feet or more in length; a better example of this wonderful Orchid it has never been my pleasure to see. Other *Vandas* are also well managed; and so too are the *Saccolabiums* and *Aerides*. *Renanthera matutina* was also noted. *Cymbidium giganteum*, a veritable giant amongst Orchids, has a congenial home amongst the Palms, but I forgot to enquire of Mr. Moore if he succeeds in flowering this species. Both *Cymbidium grandiflorum* and *C. Tracyanum* were thriving well. The comparatively rare *Caelogyne Veitchii*, also noticed, is a beautiful object when in flower, having pendent spikes of pure white blossoms. The Swan Orchid, *Cynoches chlorochilon*, *Caelogyne ocellata maxima*, *C. Massangeana*, and *Selenipedium Lindleyanum*, are all noteworthy too. *Laelia Perrini* is represented by an excellent variety then in flower.

It was a most agreeable surprise to see such splendid examples of *Anectochilus* in rude health and vigour.

STOVE AND GREENHOUSE PLANTS.

Reverting to Ferns, it was a pleasure to see good examples of *Gleichenias*, and these are splendidly

managed at Glasnevin. In a north house the *Todeas* and other Filmy Ferns are quite at home; one specially notable plant being *Todea Moorei* of a distinct shade of green; it is from Lord Howe's Island. Amongst stove and greenhouse foliage plants are several very rare species and varieties; such, for instance, as *Maranta Binoti*, which is a marked improvement upon *M. zebrina*; another is *Maranta fasciata*, a beautiful dwarf species of compact habit, having pale green leaves with broad bands of silver. *Alocasia Johnstoni*, by reason of its spines is very unlike most of the genus. *Nepenthes* are very successfully grown, such for instance as *N. Veitchi*, and the Glasnevin var. of *N. distillatoria*. *Paullinia argentea*, a silvery form

OUT-OF-DOOR FEATURES.

In the grounds every possible advantage is taken of a stream of water that flows through them, to establish the newer and best of the hardy *Nymphæas* in quiet pools. These are thriving well, and must be a fine sight during the season when viewed from the higher ground. Many suitable spots along the banks and in nooks are adorned by *Gunneras* and other water-side plants, such as *Bamboos*. *B. palmata* is quite at home, as is *Arundinaria spathiflora*, which is not seen so frequently. Conifers thrive remarkably well, especially the varieties of *Cupressus Lawsoniana*, *C. L. aurea* is very bright, and *C. L. intertexta*, of graceful habit, was striking. Hollies were bearing immense

spots are not visible in the photo (fig. 71), nor are they mentioned in the description given in the *Botany of California*, by Sereno Watson, vol. ii. (1880), p. 187. The leaves measure from 1 to 2 feet in length, and 3 to 10 inches in breadth. The peduncle is very stout, shorter than the leaves (6 to 12 inches), and bears a spathe with a broad, acute blade, and a spadix 3 to 4 inches long, resembling the Skunk Cabbage, *Symplocarpus foetidus*, of the Eastern States. It is clearly a noble-looking plant, suitable for growing in boggy places in the wild garden or rockery, and as it is found in Sitka and Kamtschatka, as well as in northern California, there is no doubt as to its hardihood.



FIG. 71.—*LYSICHTUM CAMTSCHATCENSE*—HARDY HERBACEOUS PLANT—GROWING IN THE RED-WOOD FORESTS OF NORTHERN CALIFORNIA.

of *P. thalictrofolia*, is striking. A distinct *Pandanus* was observed, viz., *P. amaryllidifolius*. As a flowering plant of most distinct character for the stove during the winter season, *Dichorizandra thyrsiflora* may be mentioned. In the same category too is *Abutilon Cloche d'Argent*, one of the very best of all the white varieties. The parasite, *Cuscuta chinensis* (the White Dodder) was pointed out by Mr. Moore, thriving upon one of the strong-growing, sweet-scented *Pelargoniums*.

In the aquatic-house the *Nymphæas* were resting, but in their season the best of the tender species may be seen there; where also are grown *Limncharis Plumieri*, a handsome yellow flowered aquatic from tropical America; *Thalia dealbata*, which is worth a trial outside in deep water; likewise *Myriophyllum proserpinacoides*, a very graceful plant, and most distinct in character. *Costus igneus* may be described as a semi-aquatic, and is extremely showy.

crops of berries, *Ilex platyphylla* in particular was distinct, with its broad laurel-like foliage, the shoots being studded all over with large-sized berries. Another fine variety was noted in *I. camelliaefolia*. In all things pertaining to the gardens at Glasnevin, Mr. Moore is an enthusiast, and it would be difficult to say in which of the many and diversified treasures under his care he takes the greatest delight. *J. Hudson*.

LYSICHTUM CAMTSCHATCENSE.

FOR the opportunity of figuring this remarkable Aroid as it grows in its native swamps, we are indebted to Mr. Burt Davy, of Berkeley, California. It is a stemless plant, throwing up large oblong-lanceolate acute leaves, from a thick horizontal root-stock. Mr. Davy tells us the leaves are sometimes spotted like those of a *Dieffenbachia*, but the

CULTURAL MEMORANDA.

HARDY SHRUBBY PHLOXES.

THESE showy plants may be raised from seed, cuttings, or division of the roots. Seeds should be sown forthwith, in shallow pans, filled with sandy soil, standing them in a gentle warmth, and pricking the seedlings off, when they are large enough to handle, at 2 inches apart in boxes, and again standing them in slight warmth. When established, remove them to cold frames, and gradually harden off prior to planting them in the open ground. Seeds may be sown at a later date in cold frames. Cuttings of choice varieties strike root easily under hand-lights stood in a sheltered position. But I prefer to take them carefully away from the old stools, with a portion of roots if possible, and plant them in boxes, standing them in a mild heat. They soon make fine plants for

the herbaceous border if gradually hardened off and planted in the borders in the month of May. Phloxes delight in a deeply dug, well enriched soil, and in applications of liquid-manure before the flowers show.

GYPSOPHILA PANICULATA.

A graceful perennial, the flowers being very acceptable for decorative purposes in a cut state. These may be also raised from seed, cuttings, and divisions. If seeds be sown at this date in pans, and stood in mild heat, they soon germinate. The young plants should be pricked out before crowding spoils them. Kept growing on in boxes, they may be planted in the borders in the month of May.

SALVIA SPLENDENS.

Cuttings taken this month and inserted in a sandy soil soon form roots in mild warmth, and the young plants should be potted off early, and grown on for a few weeks, pinching out the points to encourage bushiness of growth. The plants may be either grown in pots or planted out, at a distance of 3 feet apart, in an open position. When the plant is lifted in September from the open ground and potted, it can be had in flower during early winter. As is usual with other plants lifted at that season, it should be stood in the shade and syringed overhead three or more times daily till re-established. Eupatoriums require similar treatment; the shoots of this plant should be stopped about three times early in the growing season.

FRANCOA RAMOSA

is another plant the seeds of which may be sown forthwith in shallow pans filled with sandy soil, placing these in intermediate warmth, with a sheet of glass over each pan, and shade from the sun. The seedlings should be pricked off, and when larger shifted into small 60's, and placed in an intermediate temperature, and later in a cold frame. *Francoa ramosa* may be grown from slips taken from plants that have bloomed, striking them under a hand-glass. *H. Markham, Wrotham Park, Barnet.*

THE WEATHER IN WEST HERTS.

THE cold spell still holds. In fact, for nearly three weeks only two days and two nights have been in the least unseasonably warm, and on eight nights the thermometer exposed on the lawn showed from 9° to 15° of frost. The soil temperatures still continue low, the readings both at 1 foot and 2 feet deep being about 2° colder than is seasonable. At the beginning of the past week there occurred sufficient snow to nearly cover the ground, but since then no snow or rain worth mentioning has fallen. During a greater part of the week the winds have been very light, and from some northerly or easterly point of the compass. The record of bright sunshine was the best we have yet had this year, the average daily duration exceeding six hours. An early Rivers' Peach on a south wall came first into blossom on the 30th ult. This is six days later than its average date for the previous fourteen years, and later than in any of those years since 1895.

MARCH.

This was an exceptionally cold, dry, and sunless March. There occurred a week of tolerably warm weather in the middle of the month, but otherwise the temperature remained low. Owing to the lack of sunshine, the days were comparatively colder than the nights. Indeed, on no night did the exposed thermometer register more than 15° of frost, which may be regarded as a decidedly high extreme minimum reading for the first spring month. Snow fell on seven days, and on one occasion covered the ground to the depth of 1½ inch; but there were only six days with rain. Taking the two together the rainfall amounted to little more than three-quarters of an inch, which is more than an inch in defect of the average for the month; and with

three exceptions, the highest fall recorded in March during the past forty-four years. The sun shone on an average for only about three hours a day. There have been in the last fourteen years only four other months of March as sunless. The wind came from some northerly or easterly point for altogether, 390 hours, or sixteen days. Notwithstanding the unusual prevalence of north-easterly winds, the air in the middle of the day was of about seasonable humidity; and not, as might have been expected, unusually dry.

THE WINTER RAINFALL.

With March came to an end, the winter half of the present drainage year. It may therefore be of some interest if we consider to what extent our underground water supply is likely to have benefited by the unusually heavy rainfall of that season. Here the total measurement exceeded the average for the same six months in the previous forty years by nearly 3½ inches—which is equivalent to an excess of sixteen gallons on each square yard of surface. In the same forty years there have been only nine other instances in which the winter half of the year has been as wet. *E. M., Berkhamsted, April 4.*

FOREIGN CORRESPONDENCE.

DARWIN TULIPS FOR FORCING.

THE May-flowering Darwin Tulips have hitherto not been tried for forcing to any extent. The Quinquennial Bulb-show held at Haarlem from March 16 to 20, has shown the excellent results which may be obtained by forcing these brilliant late Tulips, and the glorious display they are capable of producing. A group of about fifty varieties was shown in low pots or pans, each containing ten to twelve bulbs of the same variety. The development of all the blooms in each pot was remarkably regular, and they were almost exactly as large and bold as in the open ground, at the usual flowering period. The bulbs were forced in the usual way, almost every pot was faultless, and it proved quite easy to get them in bloom before the opening of the show, on March 15. It would have been possible to get them ready many days earlier if wanted.

The Darwin Tulips are now being generally appreciated for their dazzling colours and bold grouping effect in May, but it may interest the readers of this paper that these late Tulips may successfully be forced to bloom as early as the first part of March. The photograph, which we shall reproduce later on, represents a few of the fifty pans with Darwin Tulips, which were, according to all reports, one of the chief attractions of the Haarlem Bulb Show. *E. H. Krelage & Son, Haarlem.*

LAW NOTES.

THE REMOVAL OF PLANTS.

At the Skipton County Court on Thursday last, before His Honour Judge Bompas, Q.C., Sarah Cryer, widow, of Silsden, sued John P'Anson Booth, gentleman, also of Silsden, for £1 16s. 9d., damages for certain breakages in a house lately tenanted by him, and which was owned by the plaintiff, and compensation for the removal of plants from a garden on the premises. His Honour, after hearing the evidence, said it appeared to be pretty generally understood that when a tenant was leaving a house he could take away flowers which he himself had planted in his garden; but he (the Judge) had looked up the law on the subject, and had found that the tenant had no right to do so. When Roses and other flowers had been planted they became a portion of the soil, and could not be taken away by the tenant. In the case of a market-gardener they could be removed, because they were part of his trade-stock. He

would, therefore, give judgment for 10s. without costs for damages, with respect to the removal of the plants; the other portions of the claim were not entertained.

AN IMPORTANT CASE FOR FLORISTS.

CULL AND ANOTHER v. GREAT EASTERN RAILWAY COMPANY.—This case came on for hearing in the Queen's Bench Division of the High Court on Thursday last, before Mr. Justice Grantham and a special jury, and was an action to recover damages for injury to the plaintiffs' business, consequent upon the negligent and wrongful use by the defendant company of their line, and for an injunction. The defendants denied negligent or wrongful user, and pleaded statutory rights for what they did.

Mr. Robson, in opening the case, said the plaintiffs were Messrs. Cull & Rook, nursery gardeners and florists, carrying on business at Shelbourne, near Tottenham. For the purpose of carrying on the business, the plaintiff had sixteen greenhouses, and for the growth of plants it was most essential that there should be good light and pure air. No complaint was made against the defendant company up to 1898, but in that year the defendant company proceeded to construct a large number of sidings, consisting of four or five pairs of rails, and it was the user of these sidings that was inflicting injury upon the plaintiffs' business. These sidings were constantly full, and whilst waiting, the engine-drivers took the opportunity of cleaning their boiler tubes, a process known as blasting, the result being that black and greasy smoke, steam, and soot were emitted, which fell upon the plaintiffs' nursery gardens and greenhouses, blocking out the light. The deprivation of light thus caused serious injury, but the plaintiffs also complained that with the smoke was emitted a large quantity of sulphur, which, mixing with the atmosphere, formed sulphurous acid, which got into the greenhouses, and seriously damaged the plants, retarding their growth, and destroying the bloom, and generally interfering with their market value.

Mr. Justice Grantham said it seemed to him to resolve itself into one of common law nuisance, subject to the defendant's statutory right to do what they were doing.

Mr. Robson said it substantially came to that. The statute of the company incorporated the Railway Clauses Consolidation Act, 1845, section 114, which provided that the engines used must be constructed so as to consume their own smoke, under a penalty of £5 a day. The engines did nothing of the kind, hence the damage, for which the plaintiffs sought compensation and relief in future.

Evidence having been given in support of the plaintiffs' contention—

Mr. McCall for the defendant company, submitted that the company took every precaution to prevent injury being caused to the plaintiffs, and it was very doubtful whether the same injury would not be inflicted by the London fog, which settled upon greenhouses and deprived the plants of light and air. Exactly the same results were discovered at Kew, which was entirely owing to London fog. The defendants had acted solely within their statutory rights, and if the plaintiffs succeeded in this action it would be utterly impossible for the railway company to carry on the statutory business the Legislature had cast upon them.

Evidence was then given for the defendant company, to the effect that the engines were of the most modern and best construction, and that everything that was possible was done to prevent injury to the plaintiffs; and further, that the injury to the plants showed no presence of sulphurous acid, and was consistent with the dripping of pure water.

In the result, the jury found for the plaintiffs, damages £400. Judgment was given accordingly, and his Lordship granted a stay of execution pending an appeal.

TWO LARGE BRITISH COLOMBIAN CONIFERS.

OUR illustration (fig. 72), taken from a photograph, kindly sent us by Mr. William Foster, residing at Vancouver, B.C., shows a tree of *Thuja gigantea plicata*, lying prostrate, and as it were saddled with *Tsuga Mertensiana* (Western Hemlock). The presumption is that seed of the latter dropped on the *Thuja gigantea*, which was covered with wet undergrowth, and finding the conditions favourable grew. It is now dead, and has been so for some years; the size as shown in the figure, gives some idea of the time it has been growing, but the interesting feature is that whilst the upright tree is showing decay, the prostrate trunk is perfectly sound, and ten

some distance from London; yet I think that ample time will have to be given for the consideration of any scheme before it is adopted, and would suggest that, as there is no time when so many Fellows of the Society are in town as at the Temple Show, a general meeting should be called then, at which it may be thoroughly discussed. I venture to doubt whether a garden at any distance south of London will ever be of much use to the country Fellows of the Society, and certainly it will not to the very large number of ardent horticulturists who live in the northern counties. If a new garden is to be made, surely it should be placed in such a central and easily accessible locality that all who wish to do so can visit it without a special journey to Kent, which I understand is the suggested county. Kent may be the garden of England, but any trials or experiments made in that favoured soil and climate can be of little

as well, it will be a credit to the Society; and considering the vast field and increasing specialisation of horticulture, I do not think it ought to try to do more. When we have got a fit place to hold it in, then a great international exhibition will be the best way of celebrating the centenary of the Society. We owe this to those who have so often hospitably entertained us at Continental exhibitions; but I should be ashamed to ask anyone to come to an international exhibition either at the Temple or the Drill Hall. We have three years before us, let us resolve to have a home of our own by 1904, and we shall succeed. *H. J. Elwes, Andoversford.*

— All those who are interested in matters horticultural in this country will feel grateful to the *Gardeners' Chronicle* for the timely and forcible way in which it has drawn public attention to the above Society at the present important juncture in its affairs. From recent official intimations given, it appears that the Council have finally decided to turn its back on old historic Chiswick, and to have set its face on establishing a new Chiswick in some other more favourable locality far enough away from London to be clear of the deleterious atmosphere of the metropolis. Not only does this decision affect the present welfare of horticulture throughout the British Isles so far as its interests are represented by the Royal Horticultural Society, but also more or less the interest of gardening for the next decade. Therefore I quite agree in the friendly suggestion you make, that the Council should take the Fellows into its confidence as to the paramount and convincing reasons that have forced the Council to this conclusion. Moreover, I would further suggest that before taking any final steps in the matter, that the Council would be kind enough to lay before the Fellows the plans it has formulated and matured for the government and management of the new Chiswick. That the influence is exercised by the Royal Horticultural Society in the development and prosperity of horticulture in this country during the last century by the agency of Chiswick, especially so during the first half of the century, all must admit; but that it has done so of late years cannot, I think, be so readily conceded. Therefore, standing as we do on the threshold of a new century, I think it is not too much to ask of the Council to give us at least a rough outline of the programme they propose to adopt, and the principles which are to govern the management of the new Chiswick. That the change is fraught with elements of uncertainty, danger, and possible disaster to the Society, few, I think, will gainsay. To buy the land (about 40 acres, I understand) will entail at least an expenditure of £4000, and to form this land into a suitable garden worthy to represent the bent of British horticulture in its most important aspects will certainly, at a moderate estimate, cost another £10,000, including the removal from Chiswick, which will be no light matter so far as expenses are concerned. Thus the first step in the new direction which the Council will be forced to take, is in itself a serious one, and one that it will be interesting to know how it is proposed to be met. The time seems to have now come, to look at and examine the question of the value of Chiswick to the Royal Horticultural Society, fairly on its merits. I do not approach this question with any hostile intent, but simply as a Fellow, and as one deeply interested in the prosperity of the Royal Horticultural Society and of gardening, especially as it relates to the calling of a private gardener. How then does Chiswick stand as regards its usefulness and importance to British gardening? and what are the returns it gives in exchange for the expenditure of £1800 annually that the keeping of it up entails. Chiswick is nearer, and far more easily approached from London than any new garden can possibly be. Yet no one goes near the garden. Comparatively little or no interest is taken in its affairs by the fellows or by lovers of gardening generally; and also, strange as it may seem, close as it is to the Drill Hall, it is seldom or ever we see an exhibit from Chiswick. The most important part it seems to play in the system of the Royal Horticultural Society so far as I know is the facility it offers for testing the merits of garden novelties in the way of new plants and vegetables, &c.; in the training, it gives to a few students in the practice of horticulture, and in some plants and seeds it distributes amongst



FIG. 72.—TRUNK OF *THUYA GIGANTEA*, PROSTRATE, OVERGROWN BY *TSUGA MERTENSIANA*.

months ago was so for its whole length of about 150 feet. Portions have now been removed; the cut where sawn off, shown plainly in the illustration, is about 50 feet from the butt, and is about 24 inches in diameter. Such specimens are common in the woods, but generally inaccessible to the camera.

HOME CORRESPONDENCE.

ROYAL HORTICULTURAL SOCIETY.—I am sure that all well-wishers of the Society will be indebted to you for your efforts to ensure a thorough discussion of the scheme which is under consideration by the Council before any new departure is made, which may involve the Society in new difficulties and discussions. Though I am unwilling to believe that a Council with such a President as Sir Trevor Lawrence, and such good horticulturists and good men of business as Sir J. T. D. Llewelyn, M.P., Mr. Godman, F.R.S., and Mr. Veitch, among others, have any idea of wishing a scheme which would involve such a heavy outlay as the purchase and laying-out of a new Chiswick at

use to the dwellers in the northern and midland counties; and the bad service and high fares of the railways in that county are notorious. It has always seemed to me extraordinary that the largest, richest, and most active horticultural society in the world, in a country where probably ten times as much is spent on horticulture as in any other, should be content to carry on their work in such a makeshift place as the Drill Hall—the most ill-lighted, cold, and inconvenient place that can be imagined! I should be inclined to put the acquisition of a suitable place for meetings and exhibitions, a long way before a new garden in the country; and I am sure that if the thing is determined on, suitable premises can be found. When we have got that it will be time enough to think of getting out of Chiswick. Chiswick may have its disadvantages, but it has one immense advantage, that of being close to Kew, the one government establishment of which we are all justly proud, the Mecca of Horticulture; which no country or foreign horticulturist can possibly omit from his programme on a visit to London. If Chiswick, or a new garden near Chiswick, will do for fruit and vegetables what Kew does for plants, and do it half

the Fellows. Now as regards the first of these services, I don't think it can be seriously contended, that any trials which can be carried out at Chiswick, can seriously vie in efficiency with the trials conducted in our country at home and also abroad by our great nursery and seedsmen. As regards the training of young gardeners, certainly the curriculum afforded for this purpose at Chiswick as compared with some of our best private, commercial, and public gardens, is, in my opinion, out of the question; and as regards the few seeds and plants distributed among the Fellows, the subject is altogether too trivial to have any weight in considering this question. So that if the programme for the new garden is to be arranged on the lines of the old one, I fail to see the necessity or the justification for such an enormous expense. The time seems to me auspicious for the Council to inaugurate a new era in its system of teaching, not in the ordinary methods and practice of gardening, but more in the science of the art or calling (whichever is the proper term to use) by establishing a college where the principles underlying and governing all growth could be demonstrated and practically enforced by having a garden of moderate dimensions attached to the college. The rule-of-thumb practice in horticulture in this country has arrived at such a high degree of perfection that, in my opinion, little more can be hoped for in this direction; but as regards the science of gardening, we gardeners as a body are in a state of chaos, and know practically nothing. Surely here is a work lying ready to the hands of the Royal Horticultural Society worthy of its best traditions, and here also is an opportunity of rendering service, not only to gardening, but to the nation also, by teaching future generations of gardeners the laws that govern the growth and economies of vegetable life, and at the same time lifting the status of gardening from the low position it now unfortunately holds to the dignity of an art and science. V. M. H.

REMARKS ON THE CYCLAMEN AS A WINDOW PLANT.—Calling on an old friend who is fond of flowers, though quite a novice, I was surprised to see two most healthy plants showing quantities of bloom, which upon enquiry, I found had been growing in the same pots, and in the same window for over five years, each year improving, and with only the most ordinary attention, for they had only been repotted once during the whole period. They were bought when eighteen months old, in bloom, so that they are now nearly seven years old, and the room they are in being quite cool they last in bloom a long time, after which they get a rest, and in their season start up again with renewed strength and vigour. There is no doubt that Cyclamens are most useful plants for amateur's window flowers, and deserve to be much more largely used, when at this time of year, plants in bloom can be bought so cheaply, and I am sure your readers are all fond of such favourite plants, so easily cultivated. W. Chambers.

HYBRIDS TRUE FROM SEED.—Mr. Wolley Dod, writing in a recent issue, p. 188, may or may not be in doubt as to whether I really said, in my lecture before the Royal Horticultural Society, that "garden hybrids are often quite equivalent to new species, and behave altogether as the so-called pure species do;" but, in any case, it may be of interest if I remark that such indeed was the meaning I intended to convey. The correctness of this view will, I think, be evident to any one who will read what I have to say in a coming issue of the *Journal of the Society*. I propose to support my opinion, and to avoid any conclusion solely based upon my own possible bias, by quotation, upon matters of fact, from various letters written me by some of the best authorities. In accordance with their behaviour, I classify hybrids into about eight sets, and while among them I have remarkable instances of hybrids that revert, I have also numerous instances of others which come true from seed. *Montbretia coccinea*, for instance, the parents of which have never, I believe, been placed even in the same genus together, comes freely from seed (which I find is offered in several good catalogues), and has never been known to revert. It is a perfectly fertile hybrid, according to high authority. In one case of my hybrid *Cinerarias*, I have, I feel sure, a much more efficient "species" than is found in either of the parents—the one perfectly different and distinct as a species from

the other—though until I have seen a few more generations, I am anxious not to be too positive. It would be a favour if any reader would be so kind as to inform me of any similar instance, for which he could vouch. Hybrids vary in character enormously, and it is quite impossible to argue from one case to another. Those of the same genus do often behave in the same way, but it is safe only to take each one separately on its own account. Mr. Wolley Dod remarks that the seed I sent him of *Verbascum cupreum* was a mixed lot; but I do not think it could have been so very much mixed. Besides, *Verbascum cupreum*, he had, if I rightly remember, only one plant of *Celsia cretica*. How the seed producing that plant, got in, I do not know, but the *Verbascum* capsules had been very carefully watched by the foreman of the department, and he himself gathered the seed. Here the same seed produced nothing but *Verbascum cupreum*, and I have a very even set of plants. In any case, the plant of *Celsia* is apart from the question, nor have the hybrids mentioned by Mr. Wolley Dod any bearing whatever with regard to other hybrids. Nature is infinite in the number and variety of her experiments, constantly failing here, and constantly failing there, but sometimes scoring a great success. Hybrid failures are more numerous than hybrid successes, and Mr. Wolley Dod's cases happen to be of the former kind, which I can well understand, because the best garden is but a very small trial-ground. I do not at all depreciate the value of the records made by Mr. Wolley Dod—quite the contrary, but the evidence therefrom is good only for the particular plants concerned. As to my position, that new species may sometimes be originated in nature, as hybrids. I may remark, that the views I hold have gradually forced themselves upon me. I had reached the conclusion quite independently, I believe, from a study of garden hybrids. Then I found that Kerner, having made a special study of natural hybrids during a period of forty years, had reached a very definite conclusion to the same effect. I speak quite generally when I say that not a few would have their views on hybrids and hybridism considerably modified, and enlarged, by reading a chapter on the "Genesis of New Species," by Kerner, in his *Natural History of Plants*, vol. ii., in the English edition, p. 578. The same result will follow, I venture to expect, by reading what I have to say about hybrids in the *Journal of the Royal Horticultural Society*. R. Irwin Lynch, *Botanic Gardens, Cambridge*.

THE SHAMROCK.

In the *Journal of the Royal Society of Antiquaries of Ireland*, vol. vi., Fifth Series, 1896, a long and excellent essay is published under the name of *The Shamrock in Literature*, by Nathaniel Colgan, M.R.I.A. The facts regarding the Shamrock are arranged chronologically, and it is shown that no reference to the Shamrock is known to occur in any book of earlier date than Lobel's *Stirpium Adversaria Nova*, 1570, from an antiquary's point of view a quite modern date.

In the works of Fuchsius (1542), Turner (1548), Mathioli (1583), and Tabernaemontanus (1588), no mention is made of the Shamrock.

For almost a century from Lobel's first reference, the Shamrock is solely referred to as a food-plant, used in times of famine or scarcity of corn.

The Shamrock used as food was one or other, or perhaps both of the Meadow Clovers or Trefoils—*Trifolium pratense*, purple Clover; and *T. repens*, white Clover.

In 1681 the Shamrock first appears in literature as a badge or emblem.

The Wood-sorrel, *Oxalis acetosella*, was not used at any period as a badge or emblem, nor was it ever used as a food-plant in Ireland.

After the close of the eighteenth century, the book references become valueless as original documents.

The legend of St. Patrick and the Shamrock first occurs in English literature early in the

eighteenth century, and in its fullest circumstance in *Musical and Poetical Relicks of the Welsh Bards*, by Edward Jones, 1794. No reference to the Shamrock is found in any of the early lives of St. Patrick. The first known occurrence of the Irish form of the word Shamrock occurs in a fourteenth century MS., under the word *scothemrack*, an adjective which (probably) means "Clovery." It is referred to as a purple flower; but the modern word seamroge = Shamrock, does not occur in Irish literature before the beginning of the eighteenth century.

The following are very brief extracts from most of the chronological references given in Mr. Colgan's article:—

1570. Lobel, a Flemish botanist—*Stirpium Adversaria Nova*.—Under *Trifolium pratense* he writes: "Nor is it from any other than this (*T. pratense*) that the mere Irish—grind (the meal for) their cakes and leaves, which they knead with butter, and thrust into their groaning bellies, when, as sometimes happens, they are vexed and nigh maddened with a three days' hunger."

1571. Edmond Campion, *Historie of Ireland*.—In the description of Irish manners and customs, he says: "Shamrotes, water-cresses, and other herbes they feed upon: oatemele and butter they cramme together."

1578. John Derricke, *Image of Ireland*.—In referring to the eating of Shamrock by the Irish people, he writes: "For in verie trothe my harte abhorreth their dealynges, and my soule dooeth deteste their wilde shamrocke manners."

1581. Stanihurst, *Plaine and Perfect Description of Ireland*.—In writing of the "Meare Irish commonlie called wilde Irish," this author enriches Campion's passage, and writes: "Water-cresses which they tearme shamrocks, roots, and other herbes they feed upon, otemeale and butter they cram together." The identification of the Shamrock with Water-cresses is here false, as the Irish word for Water-cress is *biodar*, and so has no resemblance to *scamroge*.

1595. Edmund Spencer, *View of the present State of Ireland*.—In describing the "Irish rebels," he writes: "They did eate of the dead carrions—and yf they founde a plote of water-cresses or sham-rokes there they flocked as to a feast for a time." Spencer, in using the word "or" here, probably distinguishes the Water-cress from the Clover.

1597. John Gerard, *Herball*.—Gerard illustrates purple and white Clover, and writes: "There be divers sortes of three-leaved grasses, some greater, others lesser—and first, of the common meadow trefoiles, which are called in Irish shamrockes." Gerard means that both purple and white Clover were Shamrocks, and used as food by the Irish.

1599. Fynes Moryson, *Itinerary*.—Writing of the "wild Irish," he says: "They willingly eat of the herbe Schamrock being of a sharpe taste which as they run and are chased to and fro, they snatch like beasts out of the ditches." This would refer to the *Oxalis*, the Irish name of which is "Seameoge." Moryson probably confused this name with Seamroge, there is only the difference of one letter.

1611-1630. John Speed, *Theatre of the Empire*.—This author gives the diet of the Irish as: "Water-cresses, roots, mushromes, shamrogh, butter tempered with oatmeal, whey, yea, and raw flesh." Speed distinguishes Water-cresses from "shamrogh."

1613. John Wither, *Abuses Stript and Whipt*.—

"In no more clothing than a mantle go,
And feed on Sham-rootes as the Irish doe."

"Had we found either leaves or grasse, or weeds,
We could have liv'd as now at this day can
Many a fellow subject Irish-man."

1630. John Taylor, Water Poet, *Works*.—

"Inthroned upon a seat of three-leav'd grasse,
Whilst all the Hibernian Kernes in multitudes,
Did feast with Shamrogs stew'd in Uaquebagh."

1638. Earl Strafford, *Letters*.—This author proposes to feed an Irish army of 8,000 men on Shamrocks, the men would "feed their horses with leaves of trees, and themselves with Shamrocks."

1654. Sir James Ware, *Irish Antiquities*.—In writing of the diet of the ancient Irish, Sir James says: "Of herbs they especially made use of the meadow Trefoil, the Water-cress, the common Sorrel, and the Cochlearia, or, as we name it, Scurry-grass."

1680. Henry Mundy, *Commentarii de Aëre vitali*.—"The Irish that nourish themselves with their Shamrock (which is the purple Clover) are swift of foot and of nimble strength."

1682. Sir Henry Piers, *Chorographical Description of Westmeath*, says, after harvest time, "curds and Shamrocks are the food of the meaner sort for all this season."

1686. John Ray, *Historia Plantarum*.—"The Irish who nourish themselves with their Shamrock, which is the purple meadow Trefoil, are robust and fleet of foot."

1737. Linnaeus, *Lapland Flora*.—"The swift and agile Irish nourish themselves with their Shamrock, which is the purple Trefoil, for they make from the flowers of this plant, breathing a honeyed odour, a bread which is more pleasant than that made from Spurry."

1772. John Ratty, *Natural History of Dublin*.—Under *Trifolium pratense* album (C. B.) he writes white-flowered meadow Trefoil, Hibernice Shamrock. It is very nourishing, and was much eaten by the ancient Irish, before the introduction of Potatoes, giving them strength and firmness.

1777. John Lightfoot, *Flora Scotica*.—Under *Trifolium pratense*, or Purple Clover, he writes: "In Ireland the poor people, in a scarcity of corn, make a kind of bread of the dry'd flowers of this and the preceding plant (*T. repens*) reduced to powder. They call the plant Chambroch, and esteem the bread made of it to be very wholesome and nutritive."

1794. Walter Wade, *Catalogue of Indigenous Plants of Dublin*, says, "the White Clover (*T. repens*) is the Seamaroge of the native Irish."

THE SHAMROCK AS A BADGE.

1681. Thomas Dinely, *Journal*.—First reference: "The 17th day of March yearly is St. Patrick's, an immovable feast, when ye Irish of all stations and conditions were crosses in their hats, some of pins, some of green ribbon, and the vulgar superstitiously wear Shamroges, 3-leaved grass, which they likewise eat (they say) to cause a sweet breath."

Mr. Colgan thinks that under sweet breath a sea-weed named *Dillisk* is referred to under Shamroges. Ray, in his *Correspondence*, says: "The Irish eat *Dillisk* at all times when no other food is to be had, and esteem it good to cause a sweet breath."

1689. James Farewell, *Irish Hudibras*. Wearing the Shamrock as clothes or head-gear is referred to as follows—

"Shamroges and Watergrass he shows,
Which was both meat, and drink, and close."

"Nay, not so much has Bryan Oge
To put in's head as one Shamroge."

"Bring me a bunch of suggane (hay) ropes,
Of Shamroges and Pottado-toppe,
To make a Lawrel."

The Trinity legend of the Shamrock.—First reference. 1727. Caleb Threlkeld, *Synopsis Scirpium Hibernicarum*, under *Trifolium pratense* album = *T. repens*, he writes: "This plant is worn by the people in their hats on the 17th of March yearly, which is called St. Patrick's Day, it being a current tradition that, by this three-leaved grass, he emblematically set forth to them the mystery of the Holy Trinity."

The Oxalis theory.—1830. J. E. Bicheno advances this in a paper read before the Linnean Society, of which he was a former secretary. The

paper is called, "On the Plant intended by the Shamrock in Ireland" (!) The paper is a case of "flagrant special pleading" for the case of the Oxalis; it is full of misapprehensions and assumptions. The Oxalis has never been used as a badge or emblem, or as a food.

The above are all the original literary evidences that are known in regard to the Shamrock as food, as a badge, and as an emblem of the Trinity.

In concluding Mr. Colgan's literary references to the Shamrock, something may be said of the "Trefoil" (from Lat., trifolium) in art. From the earliest Christian times, the architectural Trefoil—a form like the three-leaved Clover—has been an emblem of the Trinity. It occurs in architectural art throughout Christian buildings, and we have seen it as an emblem of the Trinity as three human heads radiating from a centre and confluent at the chin, with six eyes, three noses, and one mouth. It seems probable, therefore, that the Trinity legend of the Shamrock has been derived, in comparatively recent times, from the Trefoil in ancient art. The Irish, being a deeply religious people, next took the plant, to which they had added a religious signification, for a national badge, legend and badge alike being painfully modern.

The Trefoil is exceedingly common in the tracery of church windows; every one who has looked at the exterior of a church window must have noticed an upper external enclosing moulding (called a water-table or label moulding), terminated by a small grotesque head on either side. In Ireland this moulding is commonly called a representation of one of the snakes which were driven out of Ireland by St. Patrick—it is even referred to as a representation of fact in some Irish guide-books. The art is ancient, and only indirectly connected with the very modern legend. W. G. S.

SOCIETIES.

ROYAL HORTICULTURAL Scientific Committee.

MARCH 27.—Present: Dr. M. T. Masters (in the Chair); Mr. E. F. Im Thurn, Mr. Michael, Mr. Hudson, Dr. Russell, Mr. A. Sutton, and Rev. W. Wilks.

Fringed Cyclamen.—Dr. Masters, exhibited from the collection of Cyclamens brought by the St. George's Nursery Co., Haswell, to the Drill Hall, a leaf of their fringed Cyclamen, in which not only the flowers were fringed but the leaves were deeply lobed, and the lobes themselves were lobulate and bilobulate, the ultimate lobules being irregular in size, and, in some instances, shortly stalked, thus presenting an appearance similar to that of curled Parsley, or of some of the varieties of *Scelopendrium*. It was stated by the raisers that the sub-division of the leaves was observed originally on plants bearing flowers of the ordinary character, and subsequently on those which had fringed flowers. Continuous selection through some seven or eight years had, at length, resulted in the production of plants in which the foliage and the corolla were equally deeply fringed.

Rose-leaves.—Some Rose-leaves were sent for an opinion. They had been grown under glass, and presented no appearance of insect or fungus, but were thin in substance, and partially destitute of chlorophyll, showing that the nutrition of the plants was impaired, but from what cause could not be ascertained.

Vine-leaves diseased.—With reference to the samples sent to the last meeting from Gunnersbury, it was stated that in the opinion of Mr. Massee the appearances were consistent with the attacks of red-spider or punctures of aphides. The leaf-buds were observed by Mr. Massee to be infested with mites.

Viburnum with Hypertrophied Branches.—A specimen was sent by Mr. Richard Dean, who stated that the whole tree was covered, at intervals of a few inches, with globose, nodulated, somewhat fleshy excrescences, the size of a large Cherry and upwards. It was referred to Dr. William G. Smith for examination.

BRIGHTON AND SUSSEX HORTICULTURAL.

APRIL 3, 4.—The Corn Exchange and the adjoining Dome of the Royal Pavilion at Brighton, looked very gay on the above date, though there was little sunlight. There were few foliage plants staged, but Orchids, Azaleas, Hyacinths, Cyclamens, Tulips, and other spring flowers provided brilliant colour.

There were groups upon the ground and upon tables. Of those upon the ground, the principal one occupied a space of 100 feet, and the 1st prize was awarded to Mr. Geo. Miles, Victoria Nursery, Rugby, for a charming arrangement of Daffodils, Azaleas, Carnations, Cyclamens, &c., with suitable foliage plants. Mr. J. Hill, gr. to W. C. Wallis, Esq., Withdean, was a good 2nd. There were also good groups from gentlemen's gardeners and amateurs.

Collections of Orchids and foliaged plants arranged on small tables were a charming feature. The 1st prize was taken by Mr. J. Harper, gr. to C. A. Tucker, Esq., Preston. Mr. H. Garnet, gr. to R. G. Preston, Esq., was 2nd. Mantels and fireplaces were florally decorated in pleasing designs.

The best twelve Hyacinths came from Mr. E. A. Anderson, gr. to R. Parish, Esq., Brighton, and included well-grown examples of King of the Blues, Gigantes, Charles Dickens, Moreno, &c. Mr. G. F. Bunney, an amateur, was 2nd.

Tulips were fully expanded, Keizer Kroon, White Pottebakker, Vermilion Brilliant, Van der Neer, and other old sorts remain the leading varieties. Mr. E. Anderson was 1st; and Mr. Harper 2nd. Lily of the Valley, Freesias, Mignonette, Violets, Primroses, &c., were also staged in pleasing variety. Some good pots of *Lachemalia pendula* won a 1st prize for Mr. J. Hill. An unusual class was one for six plants of *Primula verticillata*, and several collections of these were staged.

Some good Chinese Primroses were staged in two or three classes, and in that for six pots of Auriculas, Messrs. W. Miles & Co., nurserymen, Hove, were 1st, with a very good yellow sweet-scented variety. Table plants were shown in one class; and *Marguerites* (*Chrysanthemum frutescens*) were particularly good as specimens in small pots. Mr. J. Harper was 1st with twelve pots of Narcissus, other than the Polyanthus varieties. Polyanthus Narcissus were also a good feature, shown in twelves, Mr. J. Harper was 1st in both of the foregoing classes.

Cyclamen, in 12's, made a good display, the twelve plants from Mr. Morrell, gr. to Mrs. Jenkins, Burgess Hill, being superb.

Cinerarias, in 12's and 6's, were also a good feature, well grown and bloomed plants of the best quality. Mr. L. E. Cooke, gr. to Miss Smith, Withdean, was awarded the 1st prize.

Genistas, *Asilbe japonica*, *Dielytras*, *Deutzias*, Azaleas, and *Richardias* were all very good.

Some special prizes introduced fine features, especially one for ten Orchids, in which Mr. H. Garnett was 1st.

A special class for twelve pots of Narcissus brought a good collection from Mr. J. Harper, and pretty Tulips were also shown in a few special classes. In such a Show, in which nearly one hundred classes were staged, there is, of course, a great deal of detail, but the leading features are summarised in the foregoing report.

Non-competitive exhibits.—A very fine group of plants was staged by Messrs. W. Balchin & Sons, from their Hassocks Nursery, and was awarded a Gold Medal.

Obituary.

MR. GEO. H. CLARK.—On Saturday last the grave closed over the remains of Mr. Geo. H. Clark, one of the best known and widely respected members of the seed trade in the West of Scotland. He died on Tuesday, the 27th ult., at the early age of forty-three years. Mr. Clark was from his early youth trained to the business of seed and nurseryman, every detail of which he had at his fingers ends. He was the second eldest son of Mr. Peter Clark, one of the early amateurs of the Royal Botanic Gardens, Glasgow. After a few years in the service of Messrs. Fowler & Co., he served with Messrs. Austin & McAslan, and afterwards was manager for Messrs. Smith & Simons, Glasgow. Of a frank, genial nature, he was much respected by a large number of friends. He leaves a young wife and four children.

MARKETS.

COVENT GARDEN, APRIL 5.

OUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s. d. a. d.		s. d. a. d.
Arum Lilies, dozen blooms ...	2 0 3 0	Narcissus (yellow) doz. bunches ...	2 0 6 0
Asparagus "Fern," bunch ...	2 0 2 6	— (white) doz. ...	3 0 6 0
Carnations, per doz. blooms ...	1 6 2 6	— P. Eye, doz. bun. ...	5 0 7 0
Cattleyas, per dozen 12 0-15 0		Odontoglossums, per dozen ...	4 6 9 6
Eucharis, per dozen 2 0 3 0		Roses, Red, per doz. ...	3 0 5 0
Gardenias, per doz. 2 0 4 0		— Tea, white, doz. ...	8 6 7 6
Lilac, white, bunch 8 6 6 0		— Yellow, Perles, per doz. ...	8 6 7 6
— Mauve, bunch ...	6 0 —	— Satsuma, per doz. ...	2 6 3 6
Lilium Harriett, per dozen blooms ...	4 0 6 0	— Maréchal Niel, per doz. ...	6 0 10 0
Lilium longiflorum, per dozen ...	5 0 7 0	— Catherine Mermet, per dozen ...	8 0 5 0
Lily of Valley, per doz. bunches ...	5 0 10 0	Smilax, per bunch ...	8 0 4 0
Maidenhair Fern, per doz. bunches ...	6 0 8 0	Tuberose, per doz. blooms ...	0 9 1 0
Marguerites, p. doz. bunches ...	8 0 4 0	Tulipe per bunch ...	0 8 1 6
Mignonette, per doz. bunches ...	4 0 6 0	Violets, Parma, bun. ...	3 0 5 0
		— dark (French), per doz. bchs. ...	1 0 3 6
		— English, 12 bun. ...	1 0 2 0

PLANTS IN POT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Acacias, per dozen	12 0-18 0
Adiantums, p. doz.	5 0-7 0
Arbor-vitæ, var. doz.	6 0-8 0
Aspidistras, p. doz.	18 0-26 0
— specimens, each	5 0-10 6
Orotans, per doz.	18 0-30 0
Oyclamens, per doz.	8 0-10 0
Dracenas, var., doz.	12 0-30 0
— viridis, per doz.	9 0-18 0
Dutch Hyacinths,	
per doz.	8 0-15 0
Ericas, var., per doz.	18 0-36 0
Eucyrtus, various,	
per dozen	8 0-18 0
Evergreens, var.,	
per dozen	4 0-18 0
Ferns, small, per 100	4 0-6 0

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, in sieves:	
— Bedford, bush.	6 0-8 6
— French Orab, bushel	6 0-10 0
— Wellington, bushel	8 0-15 0
— Various, per bushel	5 0-9 0
— Nova Scotia, Allwater, brl.	30 0-34 0
— Baldwin, 25 0	—
— Golden Rus, sets, barrel	32 6
— Nonpareil, barrel	16 0-25 0
— Nova Scotia and States, various, barrel	15 6-84 0
— Golden Rus, sets, barrel	25 0-85 0
— Californian, cases, New Town	9 0-15 0
— Tasmanian (various sorts) case	14 0-25 0
Bananas, per bunch	5 0-10 0
Figs (New Jersey), per doz.	12 0-24 0
Grapes, Gros Colmar, Class A, pr. lb.	3 6-5 0
Grapes, Alameda, p. dozen lb.	8 0-12 0
— Belgian, per lb.	2 6-3 0
— Class B.	2 0-2 6
Lemons, Messina, 260	6 0-10 0
— Palermo, per case	6 0-12 0
Lycobes, Chinese, new, pkt., 1 lb.	10 0-1 0
Oranges, Navel, case	9 0-14 0
— Bitters, 300	7 0-8 0
— Blood, 300	9 0-14 0
— Jaffa, per case of 144	12 0-13 0
— Mandarin or Tangier, case of 100	11 0
— Murcia, case of 240	10 6
Pears, Californian, Easter Beurre, cases	—
— half cases	—
Pines, each	2 0-4 6
Plums, Kelsey, tray	8 0-12 6
Strawberries, per lb.	6 0-8 0
— Class A.	2 0-3 0

VEGETABLES.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe, per doz.	1 0-2 6
— Jerusalem, per sieve	1 0
Asparagus, Spruce, per bundle	0 9-0 11
— English forced, per bundle	7 0-7 6
— Giant, bundle.	8 0 10 0
— Paris, Green, per bundle	5 0-6 0
— Spanish, bundl.	1 6-1 9
Beans, Channel Islands, per lb.	1 8-1 4
— Madeira, basket	4 0-5 0
— French, pkts. lb.	0 6
— Broad, or Long Pods, in flats	4 9-5 9
— English, Dwt. per lb.	1 8-1 4
Beetroots, per dozen	1 0
— per bush.	2 0-2 6
Broccoli, Cornish, per crate	10 0-15 0
Cabbage, taily, boxes, cwt.	7 0-8 0
— dozen	1 6
Carrots, English, p. dozen bunches	2 6-3 6
— cwt. bags, washed	4 0-4 6
— French, small flats	2 9-3 9
Caulliflowers, p. doz.	8 0-4 0
— Cornish crates, 10 0-22 0	
— Italian, baskets of 18	—
Celery, red, roll, per dozen	12 0-16 0
Chicory, per lb.	0 4
Colewort, p. bush.	3 0-3 6
Cress, doz. punnets	1 0
Cucumbers, doz.	3 6-4 0
Endive, new French, per dozen	1 0-2 3
— Batavian, doz.	2 0-2 3
Garlic, per lb.	0 3
Horseradish, Eng. hah, bundle	1 6-2 0
— foreign, per bun.	1 0-1 2
— loose, per doz.	2 0
Leeks, doz. bunches	1 6-2 0
Lettuce, French, Cabbage, dozen	1 8-1 6
— French Cos (good), per doz.	4 0-5 6
Mint, new, p. doz. bunches	8 0-9 0
Monks' beard (Barbe de Capucine), p. bunch	0 3 1/2-0 4
Mushrooms, house, per lb.	0 10-1 0
Onions, bags	8 0-—
— picklers, sieve	2 6-3 0
— Valencia, cases	7 6-8 0
— English, cwt.	7 6
— German, bags	5 0
Parley, 12 bunches	4 0-5 0
— per sieve	1 6
Parsnips, per dozen	1 0
— per bag	5 6-6 0
Peas, French, per lb. pkt.	0 3 1/2-0 5
— flats	4 0-5 6
Potatoes, Old various, per ton	70 0-95 0
— Dunbar Main Crop, per ton	100 0-110 0
— New Channel Islands, frames, per lb.	0 4-0 5
— Tenerife, boxes, per lb.	0 2 1/2
— per cwt.	16 0
Radishes, Long, doz.	0 9-1 0
— round	0 9-0 10
Rhubarb, home grown, natural, per dozen	1 0-1 3
— forced, per doz.	6 0
— Yorks	1 3-1 9
Salad, small, punnets, per dozen	1 8
Salsify, bundle	0 4
Scottish Kale, bush.	2 6-3 0
Seakale, per dozen punnets	18 0
Shallots, per lb.	0 8
Spinach, French, crates	3 6-4 6
Spinach, Winter, small leaf, bush.	5 0
Tomatoes, Canary, deeps	3 6-5 0
— Turnips, per dozen bunches	3 0
— cwt. bags	2 6-3 6
— new French, per bunch	1 0-1 3
Turnip tops, bags	3 0-4 0
Watercress, p. doz. bunches	0 8-0 9

POTATOES.

Main Crop, &c., 75s. to 95s.; Dunbars, 100s. to 110s.; Other varieties, 70s. to 85s.; Seed Potatoes from 4s. 6d. to 7s., in great variety, per cwt. John Bath, 32 & 34, Wellington Street, Covent Garden.

REMARKS.—Tasmanian Apples have realised excellent prices, considering there is only one bushel of fruit in each case; Alfriston, 14s. to 15s.; Cox's Orange Pippin, 16s.; New York Pippin, 17s. to 25s.; Ribston, 14s. to 25s. The New York Pippin is an attractive-looking Apple, of a pale tint, and cone-shaped. The general appearance of all is fresh and

bright. Ribstons are affected somewhat with "spotting." Amongst Tasmanian Apples on Tuesday at Mr. Monro's, was found a live scorpion. It is reported there are 23,000 bags of Egyptian Onions at Liverpool. There are a few packages of Loquats on sale, having arrived from Italy.

THE WEATHER.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period March 25 to March 31, 1900. Height above sea-level 24 feet.

1900.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				TEMPERATURE OF THE SOIL AT 9 A.M.			
		At 9 A.M.		DAY.		At 1-foot deep.		At 2-foot deep.	
		Dry Bulb.	Wet Bulb.	Highest.	Lowest.	At 1-foot deep.	At 2-foot deep.	At 4-foot deep.	LOWEST TEMPERATURE ON GRASS.
		Deg.	Deg.	Deg.	Deg.	Inch.	Deg.	Deg.	Deg.
MARCH 25 TO MARCH 31.									
SUN. 25	E.N.E.	38° 5'	33° 2'	41° 9'	34° 7'	...	39° 9'	42° 2'	43° 9'
MON. 26	E.N.E.	35° 2'	33° 6'	41° 9'	31° 7'	...	39° 9'	42° 1'	43° 9'
TUES. 27	N.N.W.	35° 0'	32° 8'	41° 1'	31° 5'	0 15	39° 4'	41° 8'	43° 9'
WED. 28	S.W.	38° 1'	37° 0'	42° 3'	31° 3'	...	39° 7'	41° 8'	43° 9'
THU. 29	N.N.E.	36° 7'	34° 3'	45° 5'	29° 8'	...	39° 5'	41° 8'	43° 9'
FRI. 30	E.N.E.	33° 2'	31° 9'	47° 3'	25° 8'	...	39° 2'	41° 8'	43° 7'
SAT. 31	E.N.E.	36° 1'	33° 8'	47° 9'	28° 5'	...	38° 7'	41° 5'	43° 7'
MEANS...		36° 1'	33° 8'	44° 0'	30° 5'	0 15	39° 5'	41° 9'	43° 8'

Remarks.—The weather during the week has been cold, dull, and dry.

ANSWERS TO CORRESPONDENTS.

* Reports of Royal Caledonian and other Societies are held over until our next issue.

ANTS IN VINERY: C. D. A. L. Ants being fond of sweet substances, may be trapped in saucers partly filled with treacle (not golden syrup), into which they crawl, and cannot get out.

BOOKS: *Asclepias*. The value of *Miller's Dictionary* is just what you can get for it. The most useful edition is Ed. VIII., as this was the first one issued after the publication of the botanical system of Linnaeus.

BOYS SCHOOLING: *Ardent*. Just let the boy learn all that he can in a general way at school, and later, say after he has reached the age of sixteen years, he will be more receptive of special instruction than if this ran concurrently with his ordinary schooling. At that age he should be given employment as a half-timer in a nursery, attending lectures on plant physiology, and botany, &c., in the evening. Books for study may consist of *Botany for Beginners*, *How Crops Grow*, &c. We are unable to answer your questions about apprenticeship fees, and where to start in business.

BURIED SCIONS: W. J. W. Provided the scions have been buried carefully with not more than 2 inches of the wood exposed to the air in a shady place, any part furnished with four to five buds may be used as a graft.

CORRECTION: The Orchid exhibit of De B. Crawshaw, Esq., at the last Drill Hall meeting (see p. 206), for *Odontoglossum Andersonianum pubescens* read *O. A. pulvereum*—natural hybrid of *O. flavum* and *O. album*.

CUCUMBER LEAVES SPOTTED: *Croydonian*. There is no fungus or signs of insect agency, and we believe that the spotting is due to drip from the rafters, or syringing with very cold water.

CUCUMBERS FAILING: S. K. Probably the plants are infested with eelworms. Send a plant, together with roots for examination.

FLOWERING OF LEMON-TREES: J. H. If kept in a greenhouse or cool conservatory, the trees should occupy the warm part of it, and not be subjected at the season when in flower to overmuch ventilation. It is of service to dew them over lightly, on closing the house say at 3.30 to 4 P.M.; and to afford sufficient water to maintain the soil in a healthy condition, and not keep it "comparatively dry" as you have done. Let the plants have the fullest exposure to the sun, and if they are not trained on a flat trellis but are round-

headed, let the tube be turned a quarter round each week. The fertilisation of the flowers by hand is not called for. Plants three years potted must long ere this have been established in the soil, if the treatment has been right. A great point in the cultivation of Oranges, Shaddocks, and Lemons for their fruit, is to get the wood well ripened, and to have them in bloom in the finest weather—say late in May and June.

FRUITING OF *FIGUS ELASTICA*: K. A. This *Ficus* does produce fruits in this country, and an instance was given in *Gardeners' Chronicle*, fig. 76, September 19, 1874.

GARDENERS' COTTAGE, GARDEN, &c.: X. Y. Z. There exists no means of getting your employer to keep his promises, and if you cannot induce him to agree to that which he promised you, there is only one course open to you, that is, to seek for another situation. A gardener living off the place would have to pay parochial rates in some form or other like other people, if his master does not pay them.

GARDENING IN SEMI-TROPICAL CLIMATES: A. R. P. See Charles Naudin's *Manuel de l'acclimatateur*, Paris, Rue Jacob 28 (Enumeration des plantes et leur culture).

PALMS: A. R. P. We commend to your notice "*Les Palmiers*" by Count de Kerchove de Denterghem; also the articles in our columns in 1884-85, by Mr. W. Watson. The literature is very extensive; you will find a list of the most important books and papers in Engler and Prantl's *Die Natürlichen Pflanzenfamilien*, vol. ii. "*Palmæ*" by Prof. Drude.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—A. C. *Narcissus minimus*.—A. S. Double pink Hepaticas, to be had from any nurseryman.—J. B. *Ruscus aculeatus*.—Francisco. 1, *Dendrobium primulinum*; 2, *Dendrobium nobile*; 3, *Dendrobium Wardianum*.—G. P. *Genista corsica*.—C. J. A. *Odontoglossum triumphans*.—W. Baylor H. Lee Chee, or Lit Chee; *Nephelema Longan*, China.—J. R. *Cataceum macrocarpum*.—F. R. S. 1, *Pellionia Daveana*; 2, *Cyrtodeira fulgida*; 3, *Odontoglossum luteo-purpureum*; 4, *Odontoglossum gloriosum*; 5 and 7, *Odontoglossum Andersonianum* varieties; 6, *Odontoglossum pulchellum*; 8, *Cypripedium caudatum*.—North Devon. 1, *Doodia caudata*; 2, *Nephrolepis pectinata*; 3, *Narcissus Eystettensis*; 4, probably leaves of *Eranthis hyemalis*, or Winter Aconite, as it is called; 5, *Scilla sibirica*; 6, from leaves only, it appears to be the *Allspice*, *Pimenta officinalis*.—X. The Turkey-Rhubarb-smelling *Dendrobium* is *D. superbum*, more commonly known in gardens as *D. macrophyllum giganteum*.—Constant Reader. *Syringa vulgaris*, white variety. We are unable to name the Potato from tubers only. Although the farmer cultivated no Potatoes, a tuber could easily be thrown into the field.—J. Milson. *Erica hyemalis*.

THE ARTILLERY PLANT: T. According to the *Kew Index* this is *Pilea serpyllifolia*, though usually called *P. muscosa*.

WORMS ON TOMATO PLANTS: G. Wilson. The worms sent are those of the click-beetle, the true wireworm imported into the houses with the pasture loam. Loams suspected of harbouring wire-worm should be out and stacked, and the stacks kept free of herbage for at least one year. Whilst the plants remain in the soil it will not be possible to dress it with anything of sufficient strength to kill the creatures. Infested land may be cleared of them by hurling sheep upon it, feeding them with Turnips and artificial foods, dressing it with lime fresh from the kiln, applied hot; dressings of salt, 5 to 8 cwt. per acre; also gas-lime. Regular fertilisers, as superphosphate and nitrate of soda, might be usefully used on the Tomato-planted border. And as the worms keeps near the surface, skimming it an inch or two deep, and charring the skimmings, would clear off great numbers of them. Avoid the use of stable and animal manures generally, various click-beetle grubs infesting these.

COMMUNICATIONS RECEIVED.—H. J. S.—H. T. M.—D. G.—E. B.—S. Buckley & Co.—E. J. B.—W. G. S.—Leeds.—J. G. W.—E. C.—Visitor.—G. B. M.—F. H. P.—J. B.—C. T. D.—A. W.—W. H. D.—A. P.—A. C. F.—W. K.—W. G. S.—Dr. W. Schlich.—A. W. W.—H. Reynolds.—G. G.—Dawson Smith.—C. J.—Comte de K.—W. B.—C. H. T.—H. J. E.—W. B.—W. T.—W. S.—A. P.



THE

Gardeners' Chronicle

No. 694.—SATURDAY, APRIL 14, 1900.

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BRITISH FORESTRY.

I.—THE TREATMENT OF GAME PRESERVES.

THE issue of the *Gardeners' Chronicle* of March 17, contains a review by Mr. W. Fisher, of Mr. Simpson's book entitled *The New Forestry*. In that review special attention is drawn to the part of the book which deals with "Forestry and Game Department on Estates," more especially to Mr. Simpson's contention, that the woods and game departments of an estate should be combined and managed under one head, instead of being conducted separately to the disadvantage of both. Mr. Simpson has, no doubt, brought prominently forward, a very unsatisfactory state of affairs, but when he blames the gamekeeper, and praises the forester, I cannot, I fear, quite join him. If antagonism has hitherto existed between the two officials of an estate, it is, at any rate in many cases, just as much the fault of the forester as of the gamekeeper, because the former has not succeeded in managing the woods in such a manner that they lend themselves to the pre-

servation of game, and yet yield a revenue from timber and firewood. As matters are in Britain, it is no use crying out against game, because proprietors, rare cases excepted, will not adopt an economic management of their woods, if game is interfered with to any considerable extent. It is the business of the forester to manage woodlands in such manner, that they meet the objects which the proprietor has in view to the fullest extent, and in the most economic manner. The preservation of game being in most cases an important object, the forester must set to work and meet it, without reducing the yield of the woods more than is absolutely unavoidable. There is no reason whatever why both objects should not be obtained, without perpetual warfare between the gamekeeper and the forester. Indeed, as Mr. Simpson correctly points out, there are good reasons why the two offices should be in one hand, since it rests at all times with the proprietor to decide whether the one or other object shall take precedence. What the exact method of treatment should be, cannot be laid down in a general way; it depends on local conditions, the kind of game to be preserved, and on the extent to which one object is to be sacrificed to the other. Hence, only concrete examples can illustrate how such cases should be dealt with. On this occasion I propose to deal with the sylvicultural treatment of pheasant preserves.

Pheasants can be reared in woods managed under any sylvicultural system, but it is generally recognised that those systems are best adapted which provide an underwood worked as coppice; and an overwood worked as high forest. The question then is, how should such woods be managed, so that they favour a plentiful and healthy stock of pheasants, and yet yield a commensurate income by the sale of timber and other wood. My experience is, that both objects can be obtained by treating such woods under the system known as "coppice with standards," according to an orderly and systematically-arranged plan of operations, or, as foresters call it, working plan. The essential conditions may shortly be indicated as follows:—

(1) A full and dense underwood is paramount. This can only be maintained by cutting it over periodically, and protecting the new shoots, at any rate for some years, against ground game. If the underwood is left too long, it becomes thin below, and does no longer fulfil its purpose as regards the game. Again, if not protected against ground game, the new shoots are cut back, or seriously injured, and they appear weak and deficient in shelter. Again, if the stools are too old, they will not send forth vigorous fresh shoots when cut over.

(2) The overwood must be sufficiently thin to admit the required amount of light to the underwood, without which the latter cannot thrive. To meet this requirement, it is necessary that the overwood should consist of thin-crowned species, such as Ash, Oak, Larch, or perhaps Pine, and the underwood of species which are either shade-bearers, or which at any rate can stand a moderate amount of shade. Of broad-leaved shade-bearers, which alone can come under consideration in the case of coppice, Beech stands first, and Hornbeam next. These species, however, are not very remunerative, and in the majority of cases, others, which are more so, must be chosen. Among these, Ash stands first, and perhaps Hazel next. Ash demands a fair amount of light, but it is well known that it will thrive,

provided the overwood is constituted as indicated above. Alder is useful in wet places. Other species may be added to the underwood to meet special requirements.

(3) The third essential condition is, that game preserves should be disturbed as little as possible. If forest operations are conducted in them, it must be done at a certain season of the year, say before March, and if possible at a few years interval.

The question then arises, how can all these requirements be made to fit in? This I propose to show as an example. Let it be assumed that a proprietor has an area of 200 acres in one block, or in a number of blocks, say four of fifty acres each, or one of 100 acres, and two of fifty acres each, or any other combination, the soil and situation being suitable for the growth of Oak, Ash, and Larch.

DETERMINATION OF THE ROTATION OF THE UNDERWOOD.—The first point to decide is, what age the underwood is to reach. The answer depends, of course, on local conditions. In some cases the underwood is cut at the age of 10 years, in others at 12, 15, 20, or more years. In the High Meadow woods it has been decided to cut it at 35 years. This is a somewhat high age, but it has been adopted chiefly because at that age the underwood yields material fit for pit-timber. Short rotations of the underwood have the important disadvantage, that the overwood will develop strong branches low down, and yields only stems clear of branches to a moderate height, but the advantage that stools will send up vigorous coppice shoots. Long rotations of the underwood have the advantage that the overwood or standards will have boles clear of branches to a considerable height, and thus yield timber of high value, but the disadvantage that a certain portion of the stools will send up either feeble shoots or none at all. Personally, I am inclined to recommend a middle course. If the underwood consists chiefly of Ash, with an admixture of Hazel, I should fix the rotation of it, on fairly good land, at 20 to 25 years, according to local conditions. In this way the standards of Oak and Ash can be kept clear of branches to a height of about 30 feet. Let us say, for the sake of illustration, that 20 years has been chosen.

DIVISION OF AREA INTO ANNUAL COUPES.—The second step is to arrange the woods into twenty coupes, or cutting areas, of approximately equal extent, and to deal with one coupe in each year. In our example that coupe would be equal to $200 \div 20 = 10$ acres. If more convenient, the area may be divided into forty coupes of 5 acres each, of which two are dealt with in each year. If the total area of woods is very large, there would be two, three, or more series, each series containing twenty coupes. The important point is the distribution of the coupes in each series of twenty, which requires to be explained. Let us assume a simple case, say there are four woods of 50 acres each, so that there would be five coupes in each wood. At the outset, the stocking in already existing woods, in all probability, would be more or less irregular, but it should be laid down as a rule that cuttings in each wood should be made only once in every four years. In this way each wood will enjoy absolute rest for 3 years, and at the end of the first 20 years the ages of the underwood should be as follows:—

Wood No. I.			
Coupe 1 should have underwood =	20 years old.		
" 5 "	" "	= 16 "	"
" 9 "	" "	= 12 "	"
" 13 "	" "	= 8 "	"
" 17 "	" "	= 4 "	"

Wood No. II.			
Coupe 2 should have underwood =	19 years old.		
" 6 "	" "	= 15 "	"
" 10 "	" "	= 11 "	"
" 14 "	" "	= 7 "	"
" 18 "	" "	= 3 "	"

Wood No. III.

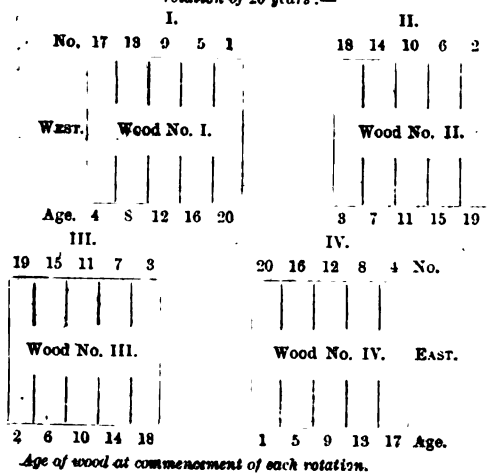
Coupe 3 should have underwood = 18 years old.	
" 7 " " " = 14 " "	
" 11 " " " = 10 " "	
" 15 " " " = 6 " "	
" 19 " " " = 2 " "	

Wood No. IV.

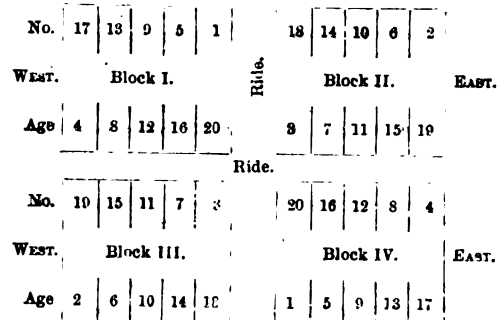
Coupe 4 should have underwood = 17 years old.	
" 8 " " " = 13 " "	
" 12 " " " = 9 " "	
" 16 " " " = 5 " "	
" 20 " " " = 1 " "	

In this way, each wood contains young, middle-aged, and old coppice, or just the combination required for pheasant preserves. The following diagram will further illustrate this:—

Number of coupe, or year, when it will be cut once in each rotation of 20 years:—



If the 200 acres form one continuous wood, the annual cuttings should not adjoin each other, but be arranged somewhat in the following manner:—



In this way each block of the wood will contain underwood of different ages, and have 3 years' complete rest. Whenever it is practicable, the coupes should be so arranged that the cuttings proceed against the prevailing wind direction, leaving a shelter-belt on the east and north edges of the wood against cold winds.

Number and Distribution of Standards.—The third question to be decided is the number and distribution of the standards. The number depends, of course, on the quality of the locality, the species, and the size of timber which it is proposed to grow. Under any circumstances, the ages of the standards must be multiples of the rotation of the underwood whenever cutting comes round; that is to say, in our example, Coupe No. 1 would contain standards aged 20, 40, 60, 80, 100 . . . years old, of which the youngest form part of the underwood, until cutting has actually taken place.

The number of standards in the several age-classes must form a falling series, in other words there must be more standards in the 20 years old class than in the 40 years class, and so on to the oldest class, which would contain only a few trees per acre. It is, of course, out of the question to work up exactly to the theoretically determined number in each class. Hence, such figures can only serve as a general guide. By way of illustration, the following example will show the

numbers before and after cutting, and the difference, representing the number of trees removed at each cutting, assuming that the oldest trees shall reach the age of 100 years.

Number of Standards immediately before Cutting.

Age of Trees.	Oaks.	Ash, Larch, &c.	Total.
New standards, still forming part of the underwood, say ...	25	25	50
Standards 40 years old ...	25	25	50
" 60 years old... ..	15	15	30
" 80 years old... ..	5	10	15
" 100 years old	5	...	5
Total	75	75	150

Number of Standards immediately after Cutting.

Age of Trees.	Oaks.	Ash, Larch, &c.	Total.
Standards just selected from underwood, 20 years old ...	25	25	50
Standards 40 years old ...	15	15	30
" 60 years old... ..	5	10	15
" 80 years old... ..	5	...	5
Total	60	50	100

Standards Cut.

Age of Trees.	Oaks.	Ash, Larch, &c.	Total.
Standards 40 years old ...	10	10	20
" 60 years old... ..	10	5	15
" 80 years old... ..	...	10	10
" 100 years old	5	...	5
Total	25	25	50

In this example it has been assumed that Ash, Larch, &c., disappear at the age of 80 years, Oak only being allowed to reach a higher age. Any other suitable combination may, of course, be adopted; for instance, some of the 80-year-old Oaks may be cut out, or specially fine Oaks may be allowed to grow beyond the age of 100 years. In such cases, the other figures must be modified accordingly. It is, under any circumstances, necessary to begin with a large number of young standards per acre, to guard against accidents, and because not all will develop into fine timber trees. In selecting the 20-year-old standards, the finest specimens are chosen, and these reduced step by step, allowing only the most promising trees to reach maturity. In this way timber of various dimensions is obtained at every cutting. It goes without saying, that in addition to Oak, Ash, and Larch, any other suitable species may be introduced, as, for instance, Spruce, a few specimens of which are very desirable in pheasant preserves. The distribution of the standards over the area should be so that each coupe contains about the same number, with the desired proportion in the age classes. In some cases the standards are arranged by single trees, each separated from its neighbour; in others they stand in small groups.

Procedure to be followed at each Cutting.—When the underwood has reached the desired age, in our case 20 years, the first business to be attended to is the selection of the new standards, in our example twenty-five Oaks and twenty-five Ash and Larch, and any other species which may be desired. It is essential to select in the first instance more than this number, as some may be injured by the subsequent fall of the standards. Then the rest of the underwood is cut. The next step is to cut the standards which are to come down. As soon as the material has been removed, the area must be examined for seedling plants of the desired species. If a sufficient number is found no planting will be required; but if this is not the case, all vacant spaces must be filled up with healthy, vigorous plants. It is impossible to say how many of these may be required, but I should say that 400 per

acre will suffice, even if no natural seedlings at all are found. Of these about 100 should be Oak, and 300 chiefly Ash, with a moderate number of Larch and other desirable kinds. These will grow for 20 years, when the fifty best will be left as new standards, and the others, Oak, Ash, and other hardwoods, are cut over to produce new stools for coppice in the place of those which have died, or are too old to produce vigorous shoots. The final step is to go over the coupes cut 4, 8, 12, and 16 years ago, to free the plants from threatening stool-shoots, and perhaps thin out the shoots where there are too many on one stool.

In order to give sufficient time for all these operations, it should be arranged that the wood, or block (in our example one out of four), where forest work is being done in any one year, should be shot over early in the season, so that the work may be commenced not later than December 1, and be completed by March. In this way the forest operations will not interfere with the shooting, so that both objects can be fully realised.

Financial Results.—It is impossible to say what the receipts at each cutting would be during the first and perhaps second rotation of 20 years, as they depend on the stock of timber existing on the area at starting. When, however, the system as sketched above, has been introduced, the following estimate of receipts and expenses per acre will not be far out, calculating with prices as they now exist in the Midland counties, and taking the cuttings as indicated above:—

RECEIPTS.		
25 Oaks yielding, say, 500 cubic feet of timber, at 1s. 6d.	£ s. d.	87 10 0
25 Ash, Larch, and other trees, say, 500 cubic feet of timber, at 1s. 3d.		31 5 0
Underwood, say		10 0 0
Total per acre		78 15 0
Total for 10 acres		787 10 0
EXPENSES.		
These can only be indicated in a very approximate manner, somewhat as follows:—		
Felling and preparing timber and underwood for sale, &c.	£ s. d.	170 0 0
Price of 4000 plants, with planting, at 50s. per 1000		10 0 0
Going over the four older coupes, say, 10s. an acre, 40 acres		20 0 0
Taxes, tithes, rates, say 3s. an acre, on 200 acres		30 0 0
Fencing with wire netting and one or two top wires, average annual expenditure, say		40 0 0
Part salary of forester, say 4s. an acre		40 0 0
Total annual expenses... ..		310 0 0
Annual net receipts		£477 10 0
Or per acre		2 7 9

I am satisfied that such an average annual income can be derived from fairly good soil, fit to produce Oak, Ash, and Larch, such as is devoted to pheasant coverts in the Midland counties. First-class soil will, doubtless, give still higher returns, without in any way interfering with the rearing of pheasants.

I do not pretend to have placed before the readers anything specially new. All I claim is, to have indicated an orderly and systematic plan of managing pheasant preserves, which, while not interfering with the game, will yield a fair return on the capital invested in the woods. *W. Schlich, Cooper's Hill, March 28, 1900.*

TO PREVENT MANURE WASTE.

WHENEVER the soil is in a condition unfavourable to the process of nitrification, there is a danger that not only may nitrates not be formed, but that there will be a loss of nitrogen from those nitrates that may be present. This loss is due to a process known as denitrification, which, like nitrification, is dependent on micro-organisms existing in the soil. The denitrifying organisms flourish under one condition which is directly opposed to the

corresponding condition favouring nitrification—namely, the absence of oxygen. Under that condition, the nitrates may be reduced or changed back to nitrites, and the nitrites are often further reduced till they lose their nitrogen by having it pass off into the air as gaseous nitrogen.

With his characteristic insight and grasp of experimental inquiries, Professor Dehérain has shown that in certain German experiments, which seem to show great loss of nitrogen in manure applied to the soil, excessive amounts of manure had been mixed with the soil, and that where such

The ideal way to apply farmyard manure, according to this eminent French experimentist, is to take it on the land, and spread it at once, then plough or dig it in. Little or no loss of ammonia will occur through a thin layer of soil. This is doubtless the key-note of the problem, though there may sometimes be much in the way of carrying out practically this suggestion. If one could always have rain descend upon the manure as soon as it is spread, provided the surface of the ground were in a state to absorb the liquid, the losses of which he speaks would be reduced to a minimum,

partially rotted was applied at the rate of 75 tons per acre, it ceased to support the growth of plants after the removal of one crop of Radishes and one of Lettuce, and experiments revealed the fact that it was due to the absence of nitrates.

Where chopped hay was mixed with the soil, nitrate nitrogen practically disappeared in a comparatively short time, which was not the case where organic matter was not applied. It may be mentioned that Sir John Lawes and Sir Henry Gilbert found at Rothamsted a marked lack of durability in the nitrogen of farmyard manure



[From a photograph by J. Gregory.]

FIG. 73.—YEW BANK, KENLEY, THE RESIDENCE OF J. WARK, ESQ.

(See "A Visit to Kenley," p. 223.)

moderate quantities are applied as are usually customary, outside of special gardening operations, such serious losses would not occur as had been claimed by the Germans, who had worked under abnormal conditions. He has further shown that farmyard or stable-manure spread on the land, or distributed in small heaps, suffers a rapid loss of ammonia. The first step is shown by him to be an escape of carbonic acid gas, which renders possible the escape of the ammonia, such losses not occurring so long as an excess of this compound is present. Less loss would result, then, when manure is firmly consolidated than when it is easily permeable by the air.

even if the manure were left on the surface, since the liquid portion held by the solid excreta would be largely washed into the soil, where, as is well known, it is practically safe. The nitrogen of the solid portion of the manure cannot so quickly and readily escape.

The various investigations have shown that one reason for the superiority of rotted over fresh manure lies in the fact that in the process of decomposition much of the bacterial food is destroyed, and in consequence the subsequent tendency to decompose nitrates is reduced. In some recent greenhouse experiments at the Rhode Island Station, when stable manure only

when large quantities were applied to the land annually for several years, which is unquestionably explainable upon the same ground.

The fact is, that it is only the comparatively small proportion of the nitrogen of farmyard manure which is due to the liquid dejections of the animals, that is in a readily and rapidly available condition; whilst that due to more or less digested matter passing in the excrement is more slowly available, and that in the litter remains a very long time inactive. Hence, the addition of nitrogen as nitrate of soda or sulphate of ammonia to farmyard manure has a very marked effect. *J. J. Willis, Harpenden.*

THE ROSARY.

THE ÉLITE OF FRAGRANT ROSES.

"EVERY Rose should have fragrance," says an eminent rosarian, and with that opinion I entirely coincide. There are, no doubt, varieties of the Queen of Flowers sufficiently commanding in their dimensions, and attractive in their colours, to make them valuable exhibition Roses, which are nevertheless quite destitute of the attribute of fragrance, conspicuous among which are Her Majesty, Spenser, and Baroness Rothschild; also that somewhat over-estimated variety, Merveille de Lyon, which after a shower of heavy rain assumes a forbidding pinky aspect, that affords evidence of its derivation. I have only two plants of this Rose in my garden, and do not intend to add to the number. They are, however, very vigorous specimens, and produce during the summer a large quantity of flowers, which in a dry and sunny season—but seldom experienced—produce a fine effect. I am more friendly to the parent of Merveille de Lyon, the Baroness Rothschild, which at least retains its colour, a matter of some importance; but I greater prefer to either the white Margaret Dickson, which derives some of its best attributes, including its delicately suggested perfume, from Lady Mary Fitzwilliam, one of the grandest (notwithstanding its dwarf habit) of the Hybrid Teas.

Among other notable hybrid perpetuals which have the supreme fascination of fragrance are Beauty of Waltham, Crown Prince, Mrs. John Laing, Charles Lefebvre, Madame Gabrielle Luizet, and Captain Hayward, of which the variety last mentioned was destined to prove an abiding acquisition; it has a stronger habit than A. K. Williams, and its roots do not give way so soon in cold, adhesive, and therefore rapidly deteriorating soils. Duke of Edinburgh and Duke of Wellington have a reminiscence of perfume, but it does not amount to much; those varieties are, however, of such lustrous beauty, as to be for garden decoration quite indispensable. I question indeed if for rich, dark, velvety-crimson hues, they will ever be surpassed. Even Victor Hugo or Horace Vernet, at their loveliest, do not excel them. Mr. Cranston's Crimson Bedder, while exceedingly floriferous and richly effective, is a very fragrant and early-flowering Rose. It is always the hybrid perpetual that opens first in my garden; it should be much more widely cultivated, especially in Scotland.

All of the profusely-flowering China Roses have a delicate fragrance. To this class there have of late years been some valuable additions, especially Madame Laurette Messimy, and its deeper-coloured derivative, Madame Eugene Rea; Queen Mab, and Duke of York, which I have never seen so effective elsewhere as at Mr. Paul's nurseries at Waltham Cross, where, especially under glass, they are grown to perfection. The Polyantha Roses are also, in many instances, very fragrant, especially the beautiful miniature snowy-white Anne-Marie de Montravail, a veritable floral gem, whose perfume resembles that of *Viola odorata*. Of the Noisette and Tea Roses, some of the most odorous are Maréchal Niel (which I am endeavouring once more, not without hope, to make a comparative success through open-air cultivation); L'Idéal, Gloire de Dijon, and Belle Lyonnaise; Bouquet d'Or, Souvenir d'un Ami, and the still more beautiful Souvenir de S. A. Prince, one of the most reliable and productive of all the Teas. Fragrant alike in flower and leaf are the Austrian, Persian, and Penzance hybrid Briars, which should adorn every garden. But the most endowed of all Roses in this special direction are the hybrid Tea Roses, whose reputation is splendidly sustained by Tennyson, Bessie Brown (an Irish beauty), Aurora, Albert Stopford, raised by Nabonnand; Mrs. W. J. Grant, and other varieties of recent introduction. Among the older Hybrid Teas, the most fascinating in their fragrance are the incomparable La France,

Duchess of Albany, Caroline Testout, Augustine Guinoisseau, and Viscountess Folkestone. These have many other precious endowments, but none more exquisite in their influence than this. *David R. Williamson.*

ROSES IN AND NEAR TO TOWNS.

With the increasing popularity of Roses, it is not strange that many try to grow them in suburban gardens. But how few succeed in getting anything like a satisfactory result! The chief point is to select suitable varieties, not only for exhibition, but for general garden decoration as well. Some of those eminently suited for town culture are given below. At the Crystal Palace last year the winning six blooms that secured the Silver Cup and 1st prize for Roses grown within 8 miles of Charing Cross were Mrs. John Laing, Marquise de Litta, Caroline Testout, Captain Hayward, Mrs. W. J. Grant, and General Jacqueminot, and I have a very vivid recollection of the freshness and quality of the blooms.

The following varieties are suitable for exhibition as well as for garden decoration:—A. K. Williams, Anna Olivier, Baroness Rothschild, Captain Hayward, Caroline Testout, Catherine Mermet, Comtesse d'Oxford, Charles Lefebvre, Dupuy Jamain, Fisher Holmes, Francisca Kruger, General Jacqueminot, Helen Keller, Kaiserin Augusta Victoria, Maman Cochet, Marquise de Litta, Mrs. R. G. Sharman-Crawford, W. J. Grant, Robert Duncan, Souvenir de S. A. Prince, The Bride, Tom Wood, Ulrich Brunner, and Victor Hugo. It will be seen that there is quite a lot of exhibition Roses to select from. All are safe varieties to grow, and several more might be added. Whilst those already mentioned will make a good garden effect, the additional varieties I shall now enumerate are Roses of exceptional free blooming qualities, and that have proved useful in suburban and town gardens:—Aimée Vibert (climber), Augustine Guinoisseau, Bardon Job, Beryl, Calocarpa, Félicité-Perpétue (climber), G. Nabonnand, Heinrich Schultheiss, Homer, Leopoldine d'Orléans (climber), L'Idéal (climber), Madame de Tartas, Madame Hoste, Madame Lambard, Marie Van Houtte, Mrs. Bosanquet, Papa Gontier, Paul Nabonnand, The Rugosas, Souvenir de la Malmaison, and Viscountess Folkestone. *A. P.*

A VISIT TO KENLEY.

Of the many pretty spots in the county of Surrey, the village of Kenley is certainly one of the most charming. The South-Eastern Railway from Furley to Caterham, that until last year was but a single line, runs along the bottom of what is known as the Caterham Valley. At Kenley, the valley is a narrow one. The ridge on one side of the railway line is known as Riddlesdown, a grass-covered common under the control of the London County Council, to which, on tempting summer days, go thousands of people from over-crowded areas in London, to get a fill of pure air, and to rest their eyes upon a delightful country landscape. This ridge, however, is not so interesting to us as is the north-east slope which faces it, and which is thickly furnished with beautiful residences, most of which possess charming, if small, gardens. The first of these that we will now mention is known as

"OAKLANDS."

This is the residence of Joseph Lawrence, Esq., Chairman of the Linotype Company, and a most busy gentleman in other spheres also. The name of the house has been suggested evidently by some very old Pollard Oaks on the premises, which of the trees in the locality are most remarkable. The front door of the house opens upon a small greensward or lawn, terminated by a low semi-circular wall of loose stones, above which is a bank where Laurels, Brambles, and other plants are allowed to grow with some appearance of naturalness. Close to this, but on a higher level, is a kind of old English garden of small beds, with rather high edgings of

Box. At the present time the visitor would find these filled with Tulips, Arabis, Wallflowers, and other old-fashioned plants.

In a garden that is not more than 6 acres in extent, every bit of ground is made the most use of possible, and many interesting and some rare species of plants have been planted in positions where they may be easily inspected. The pretty bulbous Iris, *I. Danfordia*, figured in the *Gardeners' Chronicle* for March 17, p. 170, is only one such plant; but there are few prettier that will bloom in the open ground in March. Roses appear to be extraordinary favourites in most gardens at Kenley, and in this one there are from 1500 to 2000 plants, all of which are well cared for, and consist of best varieties. A little spot has been found also for a few alpine plants.

There is a conservatory attached to the residence that affords ample room for a few very fine Palms, and for the grouping of flowering plants for effect. Almost adjoining are some span-roofed houses that contain stove foliage plants, and a collection of Orchids. We noticed a large, strong plant of *Dendrobium Wardianum* Lowi; *Cymbidium Lowi* was in bloom, and a few *Dendrobiums*, *Cattleyas*, and *Odontoglossums*.

In a position in which they cannot be observed from other parts of the garden, are two or three other glass-houses, one of which contains fruit-trees, and the other miscellaneous plants. In the *Gardeners' Chronicle*, August 5, 1899, was given an illustration of the cultivation of Strawberry-plants in a barrel, and the hint was taken at the Oaklands, where Royal Sovereign is now doing admirably in such receptacles.

In an old-fashioned Rose-house, amongst some charming Roses in bloom, we noticed a pink hybrid perpetual under the name of Gustave Nadaud. Perhaps some of our readers may know something of this variety. It is described by Mr. Bannerman, the gardener here, as "the best Rose in the country."

A pleasant walk of a mile or so intervenes between Oaklands and Mr. Lawrence's farm of 50 acres. Whether this will be a farm or garden ultimately would appear to be a little uncertain at present. The kitchen garden is to be formed here; there is a small orchard of nice young fruit-trees, several glasshouses for the cultivation of Melons, Cucumbers, Tomatoes, &c.; a collection of Chrysanthemums is cultivated; an Indian bungalow has been erected; there was a small herd of pure Jersey cows; and altogether the place will become as full of interest as it well could be.

We must mention one action that Mr. Lawrence is taking this year, because it shows that the representative of this district in the London County Council is actuated by much the same spirit in regard to the encouragement of gardening, as that body itself has shown. Mr. Lawrence has enquired of all the villagers in Kenley if they will cultivate climbing plants against their cottages, and offering to provide the plants for the purpose himself. It is his intention, we believe, to offer a prize at the end of the year for the prettiest covered cottage. In all this work, the owner has the assistance of a young and capable gardener, who has gained experience at Trentham, Castle Howard, and other places, and was general foreman at Soane Palace, N.B.

"YEW BANK" (see figs. 73, 74).

The residence of John Wark, Esq., lies a little further up the slope than does Oaklands. In 1876, when Mr. Wark first came here to live, the place was indeed small. The area of its garden has been doubled since then, and a range of glasshouses was erected a year or more ago. The centre of this range is a nice little greenhouse that Mr. Woodgate, the gardener, always contrives to keep very gay. It is now full of the showiest of spring flowering plants. On either side of this house there are others with span roofs, containing a few Orchids, and a miscellaneous collection of plants. There are Vineries, Peach-houses, Cucumber and Tomato-

houses, all of which present a most satisfactory appearance. The Mushroom-house is built almost upon the level, and is provided with a glass-roof that it may be used for other purposes during the summer and early autumn.

The whole of the garden is on a steep slope, and like most places in the district, there is only an average of about 6 inches of soil over the chalk; and even this soil contains a troublesome amount of stones. Not a very favourable site for "high" culture this! But care and diligence can

the soil has been passed through a coarse sieve. In place of crooked and worthless roots, that such ground, with its great stones intercepting their growth would naturally produce, crops are obtained of a satisfactory character.

Of trees, the Yews do as well as most upon the chalk; and Thuyas and Cypressess not less well than deciduous species. In fig. 73 is given a view of the residence, and a few gay flower-beds upon a plateau formed by making a terrace upon the sloping ground. The standard Roses are repre-

The rather singular-looking plant in the centre of fig. 74 is a combination of the Irish and Golden Yews, the Irish species bearing the grafted golden one. Mr. Woodgate, who has been with Mr. Wark since 1876, is brother to Mr. Geo. Woodgate, at one time secretary to the Kingston Chrysanthemum Society, and now gardener at Rolleston Hall, Staffordshire.

"HAZELSHAW"

is another pretty residence adjacent to Oaklands. It belongs to W. C. Straker, Esq., and his present



[From a photograph by J. Gregory.]

FIG. 74.—YEW BANK, KENLEY: A SUMMER VIEW OF MIXED FLOWER-BEDS, AND OTHERS FILLED WITH ORNAMENTAL FOLIAGE PLANTS.

(See "A Visit to Kenley," p. 228.)

and do overcome worse difficulties than these. Roses are greatly admired, and therefore in summer the standard Roses form the greatest feature of the garden; but all those standard trees in the turf have been planted in special soil, and means have been taken to prevent the roots straying from this.

In the quarter where vegetables are cultivated, the same additional work is necessary. The Parsnips, the Carrots, and some other root crops, have to be sown upon beds, of which the whole of

sented in this view, and those in the bed are associated with Gladiolus, Lilliums, Fuchsias, &c., to which is an edging of white Violas. In our other illustration (fig. 74) is shown what a pretty effect in summer is obtained by large beds planted with ornamental foliage plants. Behind the Rose-beds may be seen larger ones containing Acers, Golden Elders, Purple Nuts, and other brightly-coloured plants. Such species have been planted in preference to flowering shrubs, because "their effect is more lasting."

gardener, Mr. John Johnson, has been with him for more than a score of years. Mr. Straker has a great love for gardening, and at the present time he much enjoys the view from the front windows of his creeper-covered house, over an exceedingly well-kept lawn, and beyond, where the grass between the shrubs is adorned with spring-flowering bulbs. In the glass-houses we noticed a very nice group of plants of *Dendrobium nobile* in bloom, and in other respects appearances were satisfactory.

ORCHID NOTES AND GLEANINGS.

ONCIDIUM BARBATUM VARIETIES.

Two sprays with dissimilar flowers, which however agree in the essential details of the pretty *Oncidium barbatum*, are sent by Messrs. Hooley Bros., Thorold Gardens, Bitterne, Southampton. The larger has handsome yellow middle-sized flowers, blotched with brown, the labellum almost equally divided into three rounded lobes of a clear chrome-yellow colour. The smaller is not nearly so showy, all of its segments being narrower, the chief difference consisting in the much smaller front lobe to the lip. In both the short-bearded space between the front and side-lobes of the lip is the same.

CATTLEYA TRIANÆI.

Messrs. Hugh Low & Co. send us a flower of *Cattleya Trianæi*, in which the side petals have a pale orange stripe running down the centre, similar in colour to the darker blotch in the front of the lip. It is the beginning of a regular peloria.

HYBRID DENDROBIUMS.

Upwards of twenty pretty hybrid *Dendrobiums* raised by Fred. Hardy, Esq., Tyntesfield, Ashton-on-Mersey (gr., Mr. T. Stafford), of which specimens are kindly forwarded by him, demonstrate the seemingly endless variety to be thus obtained. Four forms of *Dendrobium* × *Cybele* (*nobile* × *Findlayanum*) are so dissimilar as to render it difficult to understand how they should be derived from the same cross. The finest, which is as showy as a good *D. Wardianum*, is *D. × Cybele Tyntesfield* variety, which has broad white sepals and petals, having the outer halves rose-purple. The lip has a heavy maroon-purple blotch surrounded with orange colour; the front portion white tipped with purple. Two of the other forms have nearly white flowers with a dark blotch in the centre of the lip.

Another extremely variable set are the result of crossing *D. × Ainsworthi* and *D. Findlayanum*. One pretty form of it has white flowers with a faint rose-coloured tint and chrome yellow disc, the other extreme being bright rose with a purple disc. A hybrid from this cross was first raised by Sir Trevor Lawrence, Bart., and was known as *D. × chrysodiscus*, being remarkable at that time as the most varying hybrid known.

D. × (Cassiope × Densonia) is a very pretty flower with yellowish-white segments tipped with rose, and with a distinct maroon blotch on an apple-green disc. A cross supposed to be between *D. nobile* and *D. Phalaenopsis* seems to give indication of the latter species, though it will have to mature before it can be decided. The flowers of *D. × (Dominyanum × Findlayanum)* represent a light form of *D. × Burberryanum* raised by the Rt. Hon. Joseph Chamberlain. *D. × Holmesianum* (*Dominyanum* × *Schneiderianum*) is a pretty flower of fine shape and colour; *D. × Niobe* (*tortile roseum* × *nobile*) well displays the labellum as in *D. tortile*. The others, which are chiefly of the *D. × splendidissimum* class, are useful flowers.

A bloom of a grand form of *Dendrobium fimbriatum oculatum* is very showy, the flower being 2½ ins. across, of a rich orange colour, with very dark chocolate-purple blotch on the lip.

THE WEEK'S WORK.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener, Stoke Edith Park, Hereford.

Miscellaneous Operations.—The grafting of fruit-trees may be performed generally in these islands at about this date. As was stated in a previous calendar the operation of grafting should be carried out quickly, the scions being firmly fixed in position and enclosed forthwith with grafting wax or prepared clay. The cold weather of the past fortnight has retarded the blossoming of Peaches and Nectarines considerably, and at the moment of writing but

few flowers have expanded fully. The trees will, however, require care, and the cultivator to be quick to guard against frost. If canvas or frigidome coverings are used to ward off frost and hail, these should, as a rule, be lowered at night, and raised when the sun begins to shine on the wall. Other means of affording protection against frost were touched upon in a former calendar, and the gardener must adopt the method which seems best adapted to his particular case. A partial thinning of the blossom-buds when very numerous should be carried out, removing first such as face inwards, i.e., towards the wall, and then on the lower sides of shoots where, if fruit be left, the base round the stalks gets highly coloured, whilst the apex is deficient in colour. It should be remembered that the excessive production of bloom has an injurious effect on a Peach-tree. Let the trees be examined at intervals of three to four days, and if green-fly be observed, even in small numbers, tobacco-powder should be applied forthwith, using a "puff" to distribute it. The earth in the various fruit quarters is much battered down and compacted by the recent heavy rains since it was dug, and it may be advisable to stir the surface with a hoe; applying a dressing of kainit or muriate of potash, especially to land under Pears that were infested last year with the Pear-midge, *Diplosis pyrivora*. When this dressing is afforded, the surface should be broken up, to a depth of 3 to 4 inches, drawing the hoe backwards and forwards afterwards, in order to incorporate the dressing with the soil. A safe quantity of either to apply is 2 ozs. per square yard.

Perpetual fruiting Strawberries.—I grew, last year, the variety *St. Joseph* for autumn use, and was well pleased with it as a fruiter. I had the plants set out on a warm border in the month of April, and I kept the blooms picked off until the month of September; and many of the current year's runners fruited quite as well as the parent plants. After the bearing season was over, the bed was not cleaned in the usual manner, but it remained as it was till the spring in order that I might be able to make another bed with the runners. The present month is suitable for planting this useful, good-cropping variety; and although the fruits are of small size, they are of high flavour and always valued late in the year.

Fruit Room.—Most fruit-rooms are empty at this date, so that an opportunity is afforded to thoroughly clean and air them. It is advisable to whitewash the ceilings and walls, and paint the woodwork. The shelves of unheated fruit-rooms, owing to dampness, get covered with mould in the spring, and when this occurs hot water and washing-soda should be used in cleaning them. If a damp-fruit-room be well ventilated throughout the spring and summer, much of the moisture will be dissipated ere fruit is stored therein.

THE FLOWER GARDEN.

By J. BENLOW, Gardener to the Earl of Lichester, Abbotbury Castle, Dorset.

Bamboos.—These graceful evergreens may be grown with a tolerable amount of success if protected from the north-east winds in the inland districts, and north-east and south-west winds along the southern coast. Positions having a southerly aspect are sometimes met with on the margins of ornamental waters, and glades, and glens in the vicinity of woods. Such sheltered spots are ideal ones for Bamboos. Given natural protection by trees and shrubs, the plants grow very satisfactorily, and the labour involved in affording artificial protection in exposed sites does not exist. A Bamboo garden may be made on a lawn near the dwelling, and if the land slopes rather rapidly, surface-water will readily pass away. In making a Bamboo garden, sufficient scope should be taken in as will allow for the planting belt or screen of evergreens, say of Hollies, Yew, Hornbeam, *Thuja occidentalis*, and others. The land should be trenched and manured, the beds should be pegged-out, and a path 10 feet wide, and 1 foot deep, well drained at the sides, with drains 2 feet, emptying at a lower level. Assuming that each bed will be allotted to one species, a drain may be laid from each bed to the main-path drain; for it is a vital point to get rid of moisture quickly, especially in the winter.

Soil for Bamboos.—For general purposes a mixture of turfy loam of good quality, some rotten cow-dung, a sprinkling of soot, and plenty of coarse road-grit is excellent for Bamboos. This mixture should be well incorporated before planting is done.

Leaf-mould affords a useful substance wherewith to top dress the land after planting it.

Time of Planting.—The best time for planting is in April and May, when the plants show signs of a renewal of growth, and new canes push up from the bottom. Vigorous plants in pots 3 to 5 feet high should be bought, smaller ones entail a wait of several years before they attain their full development. The land should have had time to settle. The holes should be dug out large enough to take the roots without crushing or bruising, for much of the future success will depend upon the care with which the planting is performed. The following selection is made with regard to the relative hardiness and height of the different species:—*Arundinaria Simoni*, *A. japonica*, *A. nitida*, &c.; *Phyllostachys viridi-glaucescens*, *P. aurea*, *P. mitis*, *P. nigra*, *P. Quilloi*, &c.; *Bambusa palmata*, *B. tessellata* (best hardy dwarf). These mentioned represent, with many dwarf species, as *Arundinaria anceps*, *A. auricoma*, *A. Fortunei*, *A. Veitchii*, *A. humilis*, *A. pumila*, *Bambusa angustifolia*, *B. disticha*, *B. Nagashima*, *B. pygmaea*, *Phyllostachys bambusoides*, *P. ruscifolia*. The dwarf species make excellent edgings to the beds of the taller species, or as fringes to the water's edge. The position for each specimen being indicated by stakes driven into the ground, knock out the plants from their pots, and lay out carefully any long and pliant rhizomes, over and around which the soil should be filled in evenly to the top of the ball, and water afforded copiously. No firming of the soil should be done other than this for two or three days.

Propagation.—The raising of Bamboos has been carried on for many years at Abbotbury, and the following method is that adopted. The soil is of the ferrous oolitic formation and porous, conducive to the formation of innumerable off-sets in the Bamboos annually, and these, with a sharp spade are easily detached, dug up and separated; in about three years they become nice specimens. These plants are not coddled, but at the proper season they are put out in their respective places, and afforded water frequently during the summer, and left to take care of themselves. In the open porous soil, *Phyllostachys aurea*, *P. mitis* and *P. nigra*, once they have taken kindly to the ground, produce these off-sets freely, but the robbing of the plants of their off-sets somewhat discourages the growth of strong canes in the parent plants. Rhizomatous shoots are produced abundantly on *P. viridi-glaucescens*. In replanting these, a trench should be taken out as for Celery, and the rhizomes laid therein and carefully covered with a few inches of fine soil and spent Mushroom-bed dung. The trench being partially filled in, admits of bracken being put over it to keep out the cold. In two or three years the plants are available for transplanting.

Isolated Specimens of Bamboos of goodly proportion may be used in beds with *Cactus Dahlias* for colour, and ground cover. Bamboos are gross feeders when thoroughly established, requiring water to be copiously afforded in the months of June, July, and August, alternating these with weak liquid-manure or mulchings of cow-dung. Rats sometimes play havoc with the young canes and shoots, which are sweet, and the pests should be trapped, or but little progress will be made by the plants.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir Frederick Wigan, Bart., Clare Lawn, East Sheen, S.W.

Trichopilia.—This charming genus is not grown so commonly as the delightful perfume of some species, the lovely flowers of others, and the readiness with which they grow under cultivation, entitle them to be. Dividing them into the cool or intermediate, and the warm-house groups: in the first we have *T. fragrans*, of which the form called *nobilis* is the best; *T. crispata*, and *T. marginata*, and of the other group—*T. suavis*, *T. tortilis*, and *T. brevis*, which do best in the Cattleya-house. The first three may be grown in well-drained pots, with the usual surfacing of peat and sphagnum-moss, affording them water copiously when rooting, but at other times a rather limited quantity. The other three thrive only in baskets or pans hung up to the roof, owing probably to the need for a dry base during the winter when there is no growth in the plants. *T. fragrans* and *suavis*, having flowered, may be put into new pans or baskets, as their condition requires, taking care not to bunch the

roots together, but to place crocks and potting materials amongst them. When the replanting is finished, let water be abundantly afforded with a fine rose watering-can, and afterwards, till the roots have made progress, merely sprinkle the surface of the sphagnum-moss so that it may be kept alive. The other species should be treated similarly when flowering is past. *T. tortilis* suffers if water lodge in the young leaves, and means should be taken to frequently rid them of any that may be found there.

Trichosma suavis.—The growths of this pretty free-flowering, cool-house Orchid, from the Khasia Hills, will soon be emitting new roots—a period when, if re-potting is necessary, it should be carried out. The plant should be accommodated in a pot which has been filled to three-fourths of its depth with crocks, over which put a compost consisting of two parts peat, one of turfy-loam, and one of sphagnum-moss, adding enough silver-sand or very small crocks to give porosity. The same degree of humidity, temperature, and shade, as are found to suit *Masdevallias*, agree with *Trichosma suavis*, excepting when rooting freely it needs much less water at the root than *Masdevallias*.

Ada aurantiaca.—This plant is most successfully cultivated when it is placed in the warmer part of the cool Orchid-house. The flower-spikes are produced by the young growths, and when the former are removed from the plant, re-surfacing or re-potting according to requirements may be performed. Any plant which is to be re-potted should have the whole of the decayed materials removed, and be placed in a pot nearly filled with crocks, the remaining space being filled with peat and sphagnum-moss in about equal proportions. Until such time as the roots have seized upon the new compost, only enough water should be applied as will keep the moss alive; and afterwards, and all through its season of growth, abundance of water is required—but during the winter a moderately dry state at the root is best, spotting of the leaves usually following the use of much water.

Oncidium ornithorrhynchum is a pretty winter-flowering species, and any plant which stands in need of more rooting-space may at this season be turned out of its pot, and have as much of the decayed material and dead roots removed as is possible without injuring the living ones; and having done this, arrange the roots in a clean pot, inserting crocks amongst them to within 2 inches of the rim, over which peat and sphagnum-moss in equal proportions should be placed, and pressed down with gentle firmness; the fibre-like roots of this species are more like those of a Heath than an Orchid. The plants should be accommodated in a house having a temperature of 58° to 68°, and afforded water sparingly at all seasons, excepting when in full growth.

FRUITS UNDER GLASS.

By J. ROBERTS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Vines.—Early Vines with berries now approaching the colouring stage will need a change in treatment. The use of fermenting materials or evaporating troughs that may have been used to charge the air with ammonia should be gradually discontinued. At the same time the roots must be afforded liberal treatment, as at this stage the berries swell very rapidly. Examine the border, and if necessary apply liquid-manure, and subsequently a dressing of Mushroom-dung or well-decayed cow-manure. Ventilate the house freely throughout the ripening stage, in order to prevent condensation upon the berries. This is especially important in the case of varieties liable to "cracking," such as *Madresfield Court* and *Duke of Buccleuch*. Cracking will never occur unless the atmosphere in the house reaches saturation point. It can be prevented by systematic ventilation night and day, in conjunction with a constant mild heat in the hot-water-pipes. Stopping of shoots at this stage should be done with caution, especially if the Vines carry a heavy crop. A moderately free growth in the last stage of ripening is very desirable. Muscat and other white-fruited varieties will colour better and quicker if a leaf or two above the bunches are tied aside to give them more light. Maintain a temperature of 70° to 75° by day, and of 85° to 90° with sun-heat, and a decline to 65° during the night. Muscats may be given a temperature 5° higher than the above figures. To prevent red-spider spreading, paint the pipes with a

mixture of sulphur, water, and a little sour milk. Where this pest is already to be seen, the leaves should be carefully sponged with soapy-water.

Later Vines should be treated according to their stage of development, but two or three important points in culture should be kept constantly in mind. Early stopping at the second or third leaf is necessary to strengthen the young bunches, allowing the shoots to make another leaf or two later if there is sufficient space for them. Early thinning of the berries will prevent a waste of the plant's strength. Disbud Vines in late houses as soon as it can be determined which will make the best bunches, and retain no more growths than can be given full exposure. Avoid high temperatures, especially during the night, and endeavour by this means, free ventilation, and judicious damping, to keep the young growth short-jointed and sturdy; then the bunches of fruit will be of the same character.

Pines.—Any plants that are nearing the ripening stage will need a rather drier atmosphere than fruited generally, and later on, as the fruits approach ripeness, less water should be afforded at the roots. Plants in flower should also be kept somewhat drier for a time, but following this apply a rich top-dressing of turfy loam and bone-meal, and remove a few of the oldest leaves from the base of the plants. Any suckers that may rob the fruit should be removed early. After this liberal feeding will be desirable, and the plants guarded from any kind of check. Carefully examine succession plants recently potted, and afford water to those that require it. More liberal treatment can be given the plants later when root-action has commenced, and increased ventilation will be needed at the same time. Do not use the syringe except on the brightest days, and then but moderately. Keep the atmosphere moist by frequently sprinkling all available surfaces, including the hot-bed. A night temperature of 70° to 75°, and 80° by day, will be sufficiently high for fruited, with 10° or 15° more by sun-heat. Succession plants for the time being may be given 10° lower all round.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Artichokes (Globe).—The cultivation of these would be much more easy if protection were afforded them during winter. In cases where litter has been placed round the stools, suckers are pushing through, and planting may with safety be commenced towards the middle of the month. The plants rarely do well if allowed to remain in the same position for more than two years, therefore half the plantation should be removed each year to a plot of ground which has been previously well dug and manured. For the new plantation do not make use of suckers growing from the base of the flowering stems, but employ those nearest the roots, as these will produce the largest heads. Allow a distance of three feet between the suckers, and about four feet between the rows, and when planted, afford them sufficient water to prevent flagging. To beds one year old apply some salt, or other fertiliser, gently forking it in near the roots. In gardens where unprotected stools have been killed by frosts, a sowing should be made under glass, but the results will be less satisfactory, as by such means the heads are generally long spined and less tender.

Potatoes.—Planting should be continued until the end of the present month, and as the recent cold weather has retarded the tubers, there is little danger of injury from frost. Where allotments or other exposed plots of ground can be used for their culture, the better will be the crop. Potatoes succeed the best with fullest exposure to light, and the sets planted in fresh soil. As to the distances to be allowed the sets when planting, the habits of varieties must be considered. In walled-in gardens, and for taller growing varieties, the distance between the rows should naturally be greater than where opposite conditions obtain. In fairly rich soils, and for dwarf varieties, 18 to 20 inches between the rows will be ample. For the main crop, however, it is not amiss to leave over 2 feet from row to row, as this allows of the soil being brought well up to the plants. The distance of the sets from each other should vary from 12 to 14 inches, and the depth may be about 6 inches,

or slightly less in heavy soils. The best method of planting is to dig out a tolerably wide trench, and after making this as level as possible, place the sets at the desired distance apart, covering them with leaf-mould, and levelling over this the former soil. There are so many good varieties, both for second-early, and main crops, that it is difficult to recommend any special ones; but when one or two have been found to thrive in a district it is as well to keep to those rather than try experiments upon a large scale with new kinds which may not thrive in that particular soil.

Seeds.—During fine weather, when the soil is in a workable condition, sow seeds for the principal crops of Broccoli, Kales, Savoys, and Brussels Sprouts; also seeds of Cabbage for use in autumn. The seed is best sown moderately thickly in shallow drills, about 1 foot apart. Thinning out can be done as germination takes place. Sprinkle some soot and wood-ashes over the ground subsequently, and in dry weather afford water. Old fish-netting will afford protection against birds.

PLANTS UNDER GLASS.

By T. EDWARDS, Foreman, Royal Plant Gardens, Frogmore.

The Fernery.—The maintenance of a moist atmosphere and a night temperature of 60° to 65°, and by day of 70° to 75°, will suit most collections of exotic Ferns. The plants of *Adiantum* set apart for furnishing fronds for cutting should be grouped together in a light position, and afforded little or no shading, with which kind of treatment the fronds grow more erect, last much longer when cut, and are of a colour more pleasing to the eye when employed with out flowers than is the case when the plants are shaded from the sun. Ferns which may be growing in suspended baskets should have all of the old fronds removed, so as to allow the young growth to develop properly. If very large baskets are necessary in some cases, it is always advisable to employ more loam in the soil than is usual when Ferns are grown in pots, as it holds moisture better than peat, and consequently immersion in water is less frequently required.

Azaleas, Richardias, Cinerarias, and other decorative plants not required at the present season will continue in flower longer and retain their colour and freshness better if they are removed to a greenhouse having a north aspect; ample ventilation being afforded at the top and bottom during mild weather, and sufficient ventilation during the night as will cause a circulation of the air. Let the paths and stages be damped twice or thrice daily in sunny weather. Before removing *Cinerarias* and *Calceolarias*, fumigate or vaporise before the flowers expand.

Chrysanthemums.—Those plants which are to be grown for furnishing large blooms may be shifted into 6-inch pots forthwith, employing as a potting-compost good turfy-loam, together with a small quantity of spent Mushroom-bed dung. The crocks should be carefully removed from the ball, and the potting performed firmly, burying the ball about 1 inch lower than before. Place the plants on a bed of coal-ashes in cold pits, and keep rather close, so as to prevent a check being given. If, as previously recommended, the soil is in the proper state as regards moisture, not any water need be afforded for several days after the re-potting, but the syringe used lightly instead three or four times a day. When the plants are re-established, ventilate freely by tilting the sashes, or removing these altogether when the weather is favourable by day. Dust the points of the shoots with tobacco-powder on the first appearance of green or black fly. The Pompon and decorative varieties should be kept apart from the Japanese and incurved; and if bush or trained plants are required, some amount of pinching the points will be necessary. Any surplus of plants there may be should be shifted on so as to furnish a supply of strong cuttings for forming dwarf plants that will flower in 5 and 6-inch pots. Dwarf plants are also produced by cutting-down, and are good for exhibition groups, where only one or two blooms on a plant are wanted; the cutting-down method being preferable as giving a longer period of time in which to build up large blooms. For furnishing the conservatory and for use in the dwelling, strong cuttings made from the tops of plants and struck about the end of next month are useful. These cuttings should be struck in a hotbed having a brisk bottom-heat.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER. Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, APRIL 16—Bank Holiday.

TUESDAY, APRIL 17 { Paris Universal Exhibition, Temporary Horticultural Show opens.

WEDNESDAY, APRIL 18—York Florists' Exhibition.

THURSDAY, APRIL 19—Linnean Society, Meeting.

SALES.

WEDNESDAY, APRIL 18.—Lilies, Roses, Hardy Plants, Greenhouse Plants, &c., at Protheroe & Morris' Rooms.

THURSDAY, APRIL 19.—Imported *Odontoglossum crispum*, at Protheroe & Morris' Rooms.

FRIDAY, APRIL 20.—Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—46° F.

ACTUAL TEMPERATURES:—

LONDON.—April 10 (6 P.M.): Max. 57°; Min. 42°. Fine; showery.

PROVINCES.—April 10 (6 P.M.): Max. 52°, Home Counties; Min., 42°, Shetland.

We have received a special notice to which we desire to call the particular attention of the Fellows, and of horticulturists generally. We have also received a draft copy of the new bye-laws necessitated by the new charter. It will be seen from the subjoined notice, that the general meeting to be held on Wednesday, April 25, at 2 P.M., is summoned for two distinct purposes: 1, the consideration, and, if approved, the sanction of the new bye-laws; and, 2, the adoption of a proposal, *a*, to purchase a freehold site in the parish of Limpsfield, Surrey, for the purpose of "developing new gardens thereon [two miles from a railway station];" and, *b*, to enter into negotiation with certain public bodies with the view to the establishment of a School of Horticulture. It is evident that this programme contains so many details that ought to be fully discussed, that it will be most undesirable that any attempt should be made to arrive at an irrevocable decision at any one meeting. We earnestly hope, therefore, that the meeting may be adjourned for the special consideration of the second and most important proposal.

SPECIAL NOTICE.

Notice is hereby given that a general meeting of the Society will be held at 117, Victoria Street, Westminster, on Wednesday, April 25, at 2 P.M.:—

(i.) To consider, and sanction if approved (either with or without addition, omission, or alteration), certain new Bye-laws rendered necessary by the Supplemental Charter lately granted to the Society.

(ii.) To consider and adopt, if approved, the following resolutions, viz.:—

(a) That in accordance with the recommendation adopted unanimously at the Annual General Meeting to celebrate the Centenary of the Society by removing the Gardens from Chis-

wick, this meeting adopts the proposal of the Council to purchase a freehold site in the parish of Limpsfield, in Surrey, and authorises the Council to take the necessary steps for acquiring the said site, and for developing new gardens thereon.

(b) That this meeting authorises the Council to enter into negotiations with, and to obtain the co-operation of the Board of Agriculture and Horticulture, the University of London, and the County Councils, with a view to the establishment in connection with or in affiliation to the Society, of a representative School of Practical and Scientific Horticulture; the scheme to be duly submitted to the Fellows for approval.

N.B.—The Supplemental Charter and the new bye-laws will be printed in full in the next number of the Society's *Journal*, vol. xxiii., part 3. Fellows requiring an advance proof of the bye-laws can obtain it on personal application at the Society's office.

By Order of Council,

W. WILKS, Secretary.

As to the bye-laws, the present Council is an excellent one, and enjoys the fullest confidence of the Fellows, so that, save on sundry points of detail, it is hardly likely that any difficulty will arise, especially when it is remembered that should any particular bye-law be found objectionable in practice, it can easily be amended at a special meeting called for the purpose.

In looking casually through the bye-laws, we notice one clause, 16, which provides for the election of certain eminent British horticulturists without payment. We think this clause should certainly be modified, so as to allow, as formerly, of the admission of sundry distinguished men of science who are ready and willing to help the Society in its scientific work, though they would not care to call themselves "eminent British horticulturists."

Clause 45 empowers the Council to ascertain the wishes of the Fellows by means of "proxies." Proxy voting was abolished some years ago, and its power for mischief is so great that we trust it may not be resuscitated.

Clause 50 reads now as if the library were the property of the Society. Of course, it is not so; the library is the property of the Lindley Trustees, and is held by them for the benefit of horticulturists in general, and of the Fellows of the Society in particular. It seems to us of great importance that the relation between the two bodies should be made perfectly clear. For instance, the Trustees have no power to remove the library to the School of Horticulture at Limpsfield, even if it were desirable to do so.

The second proposal is far more important, as it may lead to the most serious consequences. We deeply regret that the Council has not been more explicit in the notice that it has sent out. We should have liked to have had some detailed information as to the length of time the Chiswick lease has to run—whether it would not be possible to reorganise Chiswick for a time, and thus avoid the very large outlay which the removal of the present houses, if permitted by the landlord, and the formation of an entirely new garden must necessarily entail. Information is also needed as to the estimated cost of the proposed garden, and the sources whence the necessary funds are to be obtained. In the Annual Report it is stated that an appeal will be made to the Fellows to raise the necessary funds, but we fear it is hardly

likely that sufficient funds will be forthcoming from this source. No doubt, the Council will, at the meeting, give full information on these and other points that will suggest themselves; but it is evident that proposals of such magnitude cannot be adequately discussed at one meeting unless the information we allude to is circulated among the Fellows before the meeting. To attempt to carry such proposals at a meeting where nine-tenths of those present will in any case be but imperfectly acquainted with the details, would be perfectly reckless, and we have much too high an opinion of the Council to suppose that they will attempt to "rush" the matter. If it be not expedient to publish these details beforehand, then they will do doubt be laid before the meeting, when an adjournment can take place to give the Fellows an opportunity of considering the scheme in detail before definitely committing themselves to it.

LINNEAN SOCIETY.—On the occasion of the evening meeting to be held on Thursday, April 19, at 8 P.M., the following papers will be read:—I. "Alpine Vegetation of Tibet and the Andes," by Messrs. W. BOTTING HEMSLEY, F.R.S., F.L.S., &c., and H. H. W. PEARSON, M.A., &c. II. "On some Mosses from China and Japan," by Mr. E. S. SALMON.

"BOTANICAL MAGAZINE."—The April number contains coloured figures and descriptions of:—

Verbascum longifolium (Tenore), t. 7707.—A noble species with bold undulating foliage, covered with grey down, and dense spikes of yellow flowers. Raised at Kew from seed procured from Messrs. BARR & SONS. Native of S. Italy and the Balkans.

Deutzia discolor (Hemslay), var. *purpurascens*, t. 7708.—A shrub with opposite, shortly stalked, cordate, ovate acute leaves, and terminal heads of pinkish flowers. Native of Yunnan.

Antholyza Schweinfurthi (Baker), t. 7709.—This was described by Mr. BAKER in our columns, 1894, i., p. 588. Flowers in curved racemes, each flower slender, arching, red. Native of Abyssinia.

Clematis orientalis tangutica (Maximowicz), t. 7710.—A climber with ovate, lanceolate, pinnatisect leaves, the segments lanceolate dentate; flowers on long axillary stalks, yellow. Native of Central Asia.

Renanthera Imschootiana (Rolfe), t. 7711; see *Gardeners' Chronicle*, 1898, i., fig. 17.—The flowers are in long loose racemes, or panicles. The sepals are unequal, the posterior one being linear, oblanceolate, dull yellow; the two lateral ones clawed, oval, obtuse, cinnabar-red; the petals are linear, spatulate, yellow with red spots; the lip very small, three-lobed, yellow with scarlet blotches. Native of Assam, introduced by Messrs. SANDER & CO.

ROSE SHOW FIXTURES IN 1900.—In addition to those fixtures that appeared in our columns in the issue for March 17, are the following:—June 27 (Wednesday), Southampton (two days); June 28 (Thursday), Colchester; July 3 (Tuesday), Westminster (R.H.S.); July 4 (Wednesday), Farningham; July 10 (Tuesday), Harrow and Wolverhampton (three days); July 14 (Saturday), New Brighton; July 21 (Saturday), Newton Mearns; July 25 (Wednesday), Newcastle-on-Tyne (three days). Mr. E. MAWLEY, of Rosebank, Berkhamsted, Herts, writes that he will be glad to receive the dates of any other Rose show fixtures (or horticultural exhibitions in which Roses form a leading feature) for the next list of Rose show fixtures which will appear early next month.

CROYDON AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY.—The next meeting of this Society will be held on Tuesday, April 17, when a paper will be read by Mr.

SUPPLEMENT TO THE "GARDENERS' CHRONICLE," APRIL 14, 1900.



THE GARDENS AT PENCARROW, CORNWALL, THE SEAT OF MRS. FORD.

GREEN, Chairman of the Ealing Gardeners' Society, the subject being "How Plants Feed." The hon. secretary is Mr. JOHN GREGORY, 60, Canterbury Road, Croydon.

PARIS EXHIBITION.—It is announced that the Exhibition will be opened on Saturday, April 14.

MR. W. G. FREEMAN, lately assistant to Prof. FARMER at the Royal College of Science, has been appointed to the post of technical assistant to the Imperial Department of Agriculture in the West Indies.

ROYAL AGRICULTURAL SOCIETY.—The disastrous financial failure at Maidstone last year has induced the Society to reconsider its policy. A special committee was appointed to consider the matter, and recommended that in place of a show in or near a different town each year, that it would be much more economical to hold the show in some permanent locality, preferably in the centre of England, which would be convenient for railway access from all parts of the country. The report of the committee was fully considered, but the proposal for the adoption of the report was opposed by Mr. MARTIN SUTTON, on the ground that the Council should not make such a drastic change without being sure that they were in touch with their clientele. Mr. SUTTON's resolution, however, was ultimately withdrawn, and the committee reappointed, with a view of selecting a suitable site for a permanent showyard.

"SURREY'S CAPITAL."—This is the name of a "Handbook for Guildford, with short notes on places of interest in the neighbourhood," by JOSEPH E. MORRIS. It is published under the auspices of the Homeland Association for the Promotion and Encouragement of Touring in Great Britain and Ireland, and is obtainable from FRANK LASHAM, 61, High Street, Guildford; and from the St. Bride's Press, Ltd., 24, Bride Lane, E.C. It is just the sort of book to please an intending visitor to or resident at Guildford, as it gives an intelligent account of the neighbourhood such as local guides do not always provide. The fishing grounds and cycle runs receive special attention, and there are plenty of attractive pictures, and a useful map.

"FRUIT GROWERS' YEAR BOOK."—This "annual" is published at the office of the *Cable*, Hatton House, Great Queen Street. It contains lists of the fruit salesmen in various towns, directions for work in fruit gardens during each month of the year, together with articles on the regeneration of the Pear-tree, diseases of fruit trees, management of greenhouses, thinning of Grapes, and other practical subjects. It is a valuable little book for all connected with the growth or the sale of fruit.

OPEN SPACES.—It is worth noting that progress is being made with sundry variously proportioned open spaces under the care of the London County Council. On the northern side of the Thames, at Bromley-by-Bow, a small but much needed recreation ground will shortly be handed over to the youngsters. On the south side, at Deptford, a small playground and gymnasium will be ready at an early date. They are shortly to throw open Sydenham Hill Park—17 acres of ground at Upper Sydenham; Whitsuntide is given as the opening time. Of the Manor Place Lees, all that can be said is that it has not yet got through the legal preliminaries; but those once got over, the work necessary to fit the ground for its proposed object will be rapidly carried on. The date for opening cannot be fixed.

STOCK-TAKING: MARCH.—The figures which have been made public since our last stock-taking, relating to the national income, expenditure, and war loan, are stupendous; but the record of the past month's foreign trade is appetising, for it still shows progress. The imports for March, 1899, are £41,492,388; for March, 1900, £44,922,134, or an increase of £3,429,746. Raw materials for

textile manufactures for various industries, also manufactured articles of various classes are about £3,000,000 out of the total value of nearly £3,500,000 of the increase noted. Our usual "summary" excerpt is as follows:—

IMPORTS.	1899.	1900.	Difference.
	£	£	£
Total value ...	41,492,388	44,922,134	+3,429,746
(A.) Articles of food and drink—duty free ...	13,645,290	13,454,168	-191,122
(B.) Articles of food & drink—dutiable	2,206,597	2,583,965	+377,368
Raw materials for textile manufactures ...	6,406,529	7,979,326	+1,472,797
Raw materials for sundry industries and manufactures	3,648,872	4,629,891	+981,019
(A.) Miscellaneous articles ...	1,504,919	1,695,076	+190,157
(B.) Parcel Post ...	112,094	106,935	-5,159

The figures for the three months of last year are £118,242,584, against £127,078,536 for the just expired quarter—or an increase of £8,835,952. The following figures relate to foreign imports of fruits, roots, and vegetables:—

IMPORTS.	1899.	1900.	Difference.
	Bushels.	Cwt.	Value.
Fruits, raw:—			
Apples ...	231,931	97,642	-12,602
Apricots and Peaches	.....	18	+92
Bananas... bunches	.....	90,728	+38,722
Grapes ...	2,880	1,507	-573
Lemons ...	107,311	81,503	+4,669
Nuts—Almonds (cwt.)	10,787	7,789	-6,781
Oranges ...	1,857,448	789,136	-65,823
Pears ...	3,080	895	-3,323
Plums ...	68	145	+323
Unenumerated...	76,885	2,319	-37,067
Vegetables, raw:—			
Onions ... bush.	395,696	399,607	-5,347
Potatoes ... cwt.	67,894	596,440	+737,476
Tomatoes ...	.....	46,888	+46,021
Vegetables, raw, unenumerated... value	£129,200	£68,907	-60,293

The value of the—

EXPORTS

for March is £25,395,699, against £22,324,401 for the same month last year—an increase of £3,071,298. Raw materials, metals, and manufactures, yarns, &c., loom very largely on the sheet, but the items of decrease are very few and trifling compared with the items of increases. It is possible that some of this increase, also of imported manufactured and partly manufactured articles, is to be placed to the credit of affairs in South Africa. The exports for the first three months of last year are given at £82,054,041, against £72,199,230—or an increase amounting to £10,145,189.

SILVER-SWEET VINE.—Under this name, American horticultural papers style *Actinidia polygama*. The foliage on the end of the flowering shoots is described as of a silvery-white for giving a very marked and beautiful effect. The flowers are fragrant.

SELECTION.—The *Journal of the Royal Agricultural Society of England*, issued on March 31, contains a reprint of M. H. L. DE VILMORIN's suggestive paper on "Selection in Plants," from which, if space permit, we may be tempted to reproduce some passages.

CHINESE PLANTS.—Among the plants recently discovered in China by Dr. A. HENRY, and W. HANCOCK, Esq., exhibited by Mr. W. BOTTING HEMSLEY, on behalf of the Director of the Royal Gardens, Kew, at the Linnean Society on April 5,

were an *Aspidopterys* (Malpighiaceae), having obcordate leaves resembling those of some *Passiflora*, and *Lespedeza diversifolia*, and *Shutteria sinensis*; both having strikingly dimorphic leaves, without intermediate forms. *Tapidanthus calyptratus*, a singular genus founded (*Botanical Magazine*, t. 4908) on cultivated specimens, which flowered at Kew in 1856, was previously only known from Eastern India; it is an odd-looking shrub, quite singular perhaps in the large number of cells in the ovary, sometimes exceeding 150! *Lonicera calcarata* is an ornamental species of Honeysuckle, in which the corolla has a long basal spur; and *Leycesteria sinensis* is a new species with capitate flowers, found growing with *L. formosa* and *L. glaucophylla*, the only other species known. *Lysimachia insignis*, having tall, slender stems bearing two or three leaves at the top, and racemes of flowers below, was shown, with a selection from the sixty Chinese species, to illustrate the great range of variety in habit this genus has developed in the Far East. A new *Plectranthus*, like *Lonicera calcarata*, is characterized by having a long spur. The genus was actually founded on a species having a spurred corolla, hence the name; but the spur is relatively much shorter in the original species. Among several species of *Quercus* was one with leaves like a *Magnolia*, and beautiful acorns more than 2 inches across. *Helicia grandis* (Proteaceae) is a very fine species, out of about a dozen Kew possesses from China, though half of them are still unpublished. There was also a specimen of *Archangiopteris*, a new genus of Ferns, of special interest on account of being a connecting link in structure between *Angiopteris* and *Danaea*.

HOPS.—The *Culture of Hops* is the title of a new book shortly to be published by SCOTT, GREENWOOD & Co., 19, Ludgate Hill, London, E.C. It will deal exhaustively with the growth of the plant for brewing purposes, and the application of manures and insecticides.

COBÆA SCANDENS.—Messrs. DAVIS & SONS, Yeovil, have sent us a semi-double flower of the variegated form of this species, in which the calyx was normal, but the corolla consisted of five separate pieces—two of the stamens were normal, three partly petaloid. We cannot tell what caused the irregularity.

EMIGRATION.—The circular issued recently by the Emigrants' Information Office, 31, Broadway, Westminster, does not disclose any great demand for working emigrants other than farm and general labourers, and female servants in any of the Australian colonies. In South Australia, farm labourers, binders, strippers, boundary riders, and married couples without children for stations are in good request. In Queensland domestic servants and farm hands find ready employment, to whom free or reduced passages are being granted. The same remarks apply to Western Australia. In New Zealand competent men find ready employment, at good wages, at shearing, flax-milling, bush-felling, road-making, and general farm work. In New South Wales the severe drought badly affected the labour market, and has made employment scarce and irregular. In Victoria, railroad-making is giving employment to a large number of workmen in the vicinity of Melbourne, otherwise there is not much demand in general for labour. Persons are warned against going to South Africa in search of work as long as the war lasts. Farm and general labourers, skilled miners, and female domestic servants are chiefly in demand in Canada. This is the best season of the year for emigration to that colony.

AZALEA INDICA GRAFTED ON RHODODENDRON CCELESTINUM.—At an evening meeting, on February 12 last, of the Horticultural Society of Vienna, Herr HOFGÄRTNER BAYER surprised those present with a magnificent collection of flowering Azaleas which were grafted on *Rhododendron celestinum*. By employing this species as a stock

for the Azaleas, strong growth is obtained, together with much freedom to flower, and great endurance in the flower. The adaptability of Azaleas on this stock for forcing purposes is not impaired.

"THE CENTURY BOOK OF GARDENING."

A comprehensive work for every lover of the garden. Edited by E. T. COOK. (The Country Life Library; published at the offices of *Country Life*, 90, Tavistock Street, Covent Garden; and by GEORGE NEWNES, Ltd., 7 to 12, Southampton Street, Strand). We have had occasion to refer to this publication more than once, and in its present and completed shape are pleased to find that the high opinion previously formed of it is quite justified. The illustrations call for especial commendation; they are artistic, yet truthful copies of nature, and supplied from reliable sources. The *Century Book of Gardening* gives an excellent idea of the perfection to which the most ancient of crafts is now carried. Useful hints may be gleaned herefrom by the amateur cultivator of a suburban back-yard, as well as by the more ambitious landscape gardener with many acres under his control.

PLANT PORTRAITS.

CHRYSAETHRUM MYRTO, *Revue Horticole*, March 16.
MAMMILLARIA MISSOURIENSIS, Sweet, a small species with oblong-obtuse tubercles, crowned with a ring of sub-equal spines; flowers yellow, berries scarlet; *Meekans Monthly*.
PEAR JOYAU DE SEPTEMBRE, a medium-sized, pleasant-flavoured Pear, ripening in September; *Bulletin d'Arboriculture*, &c., March.
SALVIA PATENS, *Revue de l'Horticulture Belge*, April.
TIGRIDA PAVONIA, two varieties, one a yellow self without spots, the other pure white; *Revue de l'Horticulture Belge*, April.

PENCARROW.

[SEE SUPPLEMENTARY SHEET.]

PENCARROW, in Cornwall, was laid out by Sir William Molesworth in the intervals between Parliamentary sessions. During his term of office as Chief Commissioner of Works, Kew was first opened to the public on Sundays. He was also the first Secretary of State for the Colonies; and like the present Secretary possessed a fine collection of Orchids, and was greatly interested in Kew and its work.

On the death of her brother's widow, Mrs. Ford, the widow of the brilliant writer Richard Ford, succeeded to the estate. Mrs. Ford has a good knowledge of Conifers, and hardy trees and shrubs generally; and despite her advanced age, she retains a vivid recollection of the planting of many of the finest specimens. To her I am indebted for the following particulars—

"My brother, the Right Hon. Sir William Molesworth, Bart., M.P., commenced his alterations in 1831, at the age of 21. He was not only a scientific botanist, he was as well a skilful landscape gardener. He converted the exceedingly ugly lawn in front of the house into the present beautiful terraced garden. The rockery took three years in making, and all the gigantic blocks of granite of which it is composed were brought to Pencarrow in the carts of his farmers (which were lent him for the purpose), from places ten to twelve miles distant. It was quite a sight to watch the carts arriving with these huge boulders, that the men afterwards assisted in placing in the rockery. The rockery is extremely fine and well arranged; the huge boulders being boldly and effectively placed. In it are growing fine Camellias, Himalayan Rhododendrons, *Andromeda floribunda*, *Yuccas*, &c.

"Sir William bought almost everything of value, horticulturally speaking, that came out; he had an especially fine collection of Orchids, which was sold after his death in 1855, while Secretary of State for the Colonies. The seed of the glorious *Abies amabilis* was given him when he was Commissioner of Public Works by Sir W. Hooker, and is now grown to be the finest specimen in England, and the glory of my home."

The collection of Conifers is a fine one; for the most part the trees are grouped on either side of a

long carriage-drive. At the Bodmin end there is an avenue of *Araucaria imbricata*. The finest specimens are *Abies amabilis*, *A. cephalonica*, *A. nobilis*, *Cryptomeria japonica*, and *C. elegans*, *Cupressus Goweriana*, *C. macrocarpa*, and *C. torulosa*, *Juniperus chinensis*, *J. excelsa*, and *J. procumbens*; *Picea Morinda*, many fine, well clothed examples; *Pinus insignis*, *P. insignis* var. *radiata*, and *P. Montezumae*; *Pseudotsuga Douglasii*, and its var. *taxifolia*; and *Fitzroya patagonica*. These are all very fine specimens.

At the Conifer Conference of 1891, Mrs. Ford was awarded a Silver Knightian Medal for a collection of cones.

Numbers of good *Gunnera scabra* (one very fine *G. manicata*), *Osmunda regalis*, *Bambusa Metake*, and *B. nobilis*, grow on the banks of a stream on the way to the American garden, which contains a variety of 6-feet-high bushes of *Camellia*, Ghent Azaleas, *Azalea indica*, *A. amena*, and hybrid *Rhododendrons*.

On the lawn behind the large *Pinus insignis* stands a remarkably good *Fagus betuloides*, over 40 feet high, and of good form.

The flower garden seen in the illustration is in the form of a huge sunken panel, and presents a very bright appearance in summer.

At the back of the photograph appears a corner of the range of glass-houses, which are:—A stove containing some fine *Crotons*, *Anthurium Veitchii*, *A. magnificum*, *Areca lutescens*, *A. rubra*, and a small collection of Orchids. At the back of the stove is a nice tropical rockery, Zingiberaceous plants, *Pandanus graminifolius*, *Rhapis flabelliformis*, &c., the ground covered with *Selaginellas* and *Fittionias*. Adjoining the stove is a house of tropical *Nymphæas*, with large baskets of Ferns suspended from the roof, and with *Bougainvillea scabra*, *Allamanda Schottii*, &c., as climbers. In this range are also two vineries, a cool conservatory, with large plants of *Dicksonia antarctica*, *Cyathea*, *Latania borbonica*, &c.; a small house with the roof covered with *Lapageria rosea*, and next a *Fuchsia*-house.

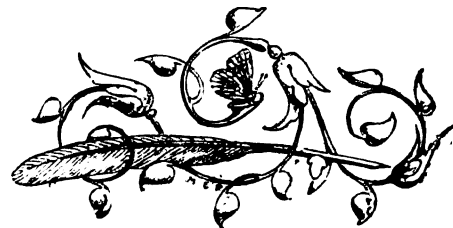
The kitchen-garden is nearly four acres in extent, the greater portion enclosed by 10-foot walls, on which are trained Peaches, Plums, Apricots, Cherries (Morello and Sweet), Currants, and Pears, and a fine old Pomegranate. In the kitchen-garden are two vineries, a forcing-house, and pits and frames.

Adjoining the kitchen-garden there is a good-sized orchard, and a Filbert-nut quarter. In the orchard is a very fine Mulberry, and a large Walnut-tree. The kitchen-garden crops are of the character customary in large gardens, where a town and a country house have to be supplied. Bush Apples and Pears are planted around the squares in the kitchen-garden. A. C. Bartlett.

EARLY RHUBARBS.

It is very evident that Daw's Champion Rhubarb, a cross from the varieties *Victoria* and *Champagne*, has merits that will render it of the greatest value to all gardeners, whether private or commercial. It has been exhibited on two occasions before the Royal Horticultural Society by Mr. Poupart, of Twickenham, and on February 13 an Award of Merit was recommended in its favour as a mark of superiority as a variety for forcing; while on March 27 a First-class Certificate was given, when Daw's Champion was proved to be much earlier than other varieties when cultivated in the open ground. Mr. Poupart said that the four varieties he then exhibited had been grown in the same situation, and under exactly similar conditions, and Mr. Poupart's word is as good as his bond.

Our artist, Mr. W. G. Smith, has sketched in fig. 75, p. 235, each variety then exhibited, in order to show the exact difference in the stage of development. Readers may notice that *Victoria* is latest of all. Even in such a common article as Rhubarb, such an acquisition as the new Champion is of great importance.



HOME CORRESPONDENCE.

BLINDNESS IN NARCISSUS.—The editorial reply to a query by "F. C." in the "Answers to Correspondents," p. 206 of a recent issue of the *Gardener's Chronicle*, gives me an opportunity of stating that I have given this matter some attention, and that I have come to the conclusion that blindness in *Narcissus* is due to a check in growth through (1) deficiency of moisture in the soil, (2) overcrowding, and consequent exhaustion of those properties necessary for proper growth, (3) early defoliation and consequent weakness of the bulbs through drought in the previous year; these conditions being collectively conducive to a fourth: the production of weak, hollow scapes before their season, which are injured by penetrating frosts after they have left the bulbs, and before they have penetrated the soil. In every case of blindness that has come under my notice, both in my own garden and elsewhere, it was easy to trace the origin of the blindness in one or other of the conditions noted above. I have not noticed blindness in bulbs growing in a strong, moist soil, save when they were overcrowded. Imported bulbs of the smaller species of the *Pseudo-Narcissus*, *Poeticus* and *Bulbocodium* groups, which have suffered in transit, will frequently produce abortive scapes for the first year, and perfect flowers in successive years. Varieties of the *Tazetta* group rarely produce perfect flowers outside; their season of growth being months in advance of the others. The larger growing *Narcissus* are naturally moisture-loving plants, and without gross feeders; inasmuch that it is almost impossible to overdo them with either moisture or high feeding, in other than the heaviest of soils. Bulbs producing blind scapes should be lifted when ripe, and replanted in an enriched soil at the rate of six to ten to the square foot, according to their size; a good dressing of stable manure a year old is the best manure to give them. It is interesting to record that 100 or more clumps of *Narcissus* which produced blind scapes last year in this garden, and which were split up and replanted on a fresh site, are all producing perfect flowers this year. The removal to a better soil, and the heavy rainfall of the last few months have fully restored them to health and vigour. So far as I am able to judge, there are fewer cases of blindness in *Narcissus* this year than has been the case for several years previously; a result, doubtless, of the heavy winter rains. G. B. Mallett, Isleworth.

PROTECTING PEACH BLOSSOM.—At p. 128, our old valued friend, Mr. D. T. Fish, offers some sensible remarks on retarding the Peach blossom, by unnailling and keeping the branches away from the wall. The same method used to be practised with success some fifty years ago by my father, gardener to the Marquis of Camden, Wildenrness Park; but in these days, labour is so cut down in many places that the nailing has to be done when time and opportunity offer—so the practice of fully unnailling cannot be conveniently carried out. In the year 1863, I wrote in these columns how best to secure a crop of fruit, and the paragraph so pleased the late Mr. W. E. Gladstone, that I received a very complimentary letter from him on the subject; that was at the time I lived at Osberton. I see our valued correspondent, Mr. A. Ward, recommends something like the same system adopted by me many years since at Osberton (see p. 166); and I have not yet seen a better plan adopted. The time is now at hand when protection is required—some people ask, is it absolutely necessary to protect Peach blossom in spring? I answer without hesitation, in most counties, yes. Many gardeners at the present day are in favour of covering the walls with glass; this method is stated by some to be the only means of ensuring a crop of fruit (but this does not always succeed). The advice is good where expense is not an object, for most seasons no doubt

a crop will be secured; but the same people add to be doubly sure, it would be better to have a flow and return hot-water pipe—thus adding to the expense. Now if this is absolutely necessarily required, why not build Peach-houses at once, and turn the wall to some other account. Garden walls are not built for fruit culture only, but for ornament, shade, and privacy, and it is entirely doing away with the original idea if they are to be covered with glass; we are quite aware good Peaches can be produced under glass, and that good Peaches can be produced without it is also a fact. Then why should we go to the expense of glass coverings? for that which is required in most gardens are productions of first rate quality at as little expense as possible. Now one item (not

stone projected sufficiently wide that when the poles were put up the Frigi-domo was clear of the trees, and my crops of fruit for years at the two places named were very satisfactory. At Enville we did not make a feature of out-of-door Peaches, nor Harefield; the long Peach cases at the former place were sufficient for all requirements, whilst at Harefield Grove I had not a Peach-tree out of doors, there being eleven Peach-houses to superintend. But gardeners speaking in favour of glass walls say, the wood ripens better and the fruit is better flavoured. As regards ripening of the wood the statement is no doubt true, but my practice was to disbud as early as possible, and to encourage early free growth, and never to suffer the trees to be checked by blight. These points pro-

the author given after each plant-name. Even for those persons who cannot in all cases verify the correctness of the names under which they cultivate the plants, it is useful to have a ready means by which to distinguish on the labels the names of such plants that have been botanically described, and those which have not. I only can say that on account of the (as far as I know) almost complete lack of reliable publications on gardening here (Nice), one is left, as I have had to experience to my cost, to feel one's way—as the French say, "tâtonner." *Nicois.*

HYBRIDS TRUE FROM SEED.—I would not be so ungrateful as to suggest that Mr. Lynch sent me seed which was not what it pretended to be, but he knows that the seed he sent me as *Verbascum cupreum* produced also several seedlings with pinnate leaves, which did not flower. I sent him specimens of the leaves, and it was his own opinion that seed of *Celsia cretica* must have got mixed with the *Verbascum*. I thought they still might all be *Mulleins*, but as the winter has killed them, probably Mr. Lynch was right, *Celsia* not being hardy here. But granting that Mr. Lynch has a *V. cupreum* which comes true from seed, though of hundreds which have come spontaneously in this garden, I never could find one which seeded at all, it still remains in order to establish its claim as a new species to show that it is sufficiently persistent to maintain itself permanently as a wild plant. Many British wild hybrids of *Verbascum* have been described, but though they occur, none has proved persistent enough in any locality to become a species. The same may be said of hybrids of *Carduus*, and *Primula veris* × *P. acaulis*. What I ask for, though it may be thought too exacting, is that a botanist should say "here is a distinct wild species reproducing itself permanently from seed; I can exactly imitate that species by a hybrid between two other species, and the hybrid will be fertile and constant from seed." This evidence I have been looking for in vain for many years, and not one of fifty hybrids I have grown here, most of which have come spontaneously in my own garden, has fulfilled these conditions. *C. Wolley Dod, Edge Hall, Malpas.*

THE KEEPING QUALITIES OF APPLE NEWTON WONDER.—In connection with the recent discussion in the *Gardeners' Chronicle* upon the keeping qualities of the Apple Newton Wonder, I am sending you several fruits from trees growing in an orchard on a dry slope, where the soil is largely composed of broken stones, lime-rubble, and old tiles, evidently removed from some portion of the abbey. Fruits of Newton Wonder from these trees always keep well, as do those of Bramley's Seedling and Lane's Prince Albert; but fruits of the same varieties grown upon trees in the kitchen garden will not keep good until Christmas, as they become spotted. This, I think, is proof that when spotting occurs, it is not so much the fault of the Apple as of the situation in which the trees are planted. *Wm. Camm, Battle Abbey Gardens.* [The fruits are not only free from "spitting," but are remarkably fresh-looking for the date of season, showing that though the variety is rather more influenced by the nature of soil and situation than are some others, yet when the conditions afforded it are quite suitable, the fruits will keep good for a long period of time. *Ed.*]

PARSNIP, TENDER-AND-TRUE.—I was interested on reading "R. D.'s" remarks, p. 188, on this Parsnip. I have grown it here for two years, side by side with the Student, and have found it to be far superior to that variety, much whiter in appearance, and not growing so coarse; and for exhibition there is no comparison. [Have you the true Student of Messrs. Sutton, a variety of the Hollow-Crowned? *Ed.*] This I proved when showing it in November, 1898, being the only exhibitor of Tender-and-True, and in a well filled class this was placed 1st, and stood out so prominently that I had several enquiries as to the variety, which again in the following year was placed 1st. I think it is by far the best variety for private gardens where fine quality should be the first consideration, and for my own part, I have quite discarded all other varieties in favour of Tender-and-True. *J. G. W., Beasborough, Piltown, Ireland.*

APPLE LANE'S PRINCE ALBERT.—This Apple was gathered last October, and has been kept on the fruit-room shelf. The fruit is firm, sound

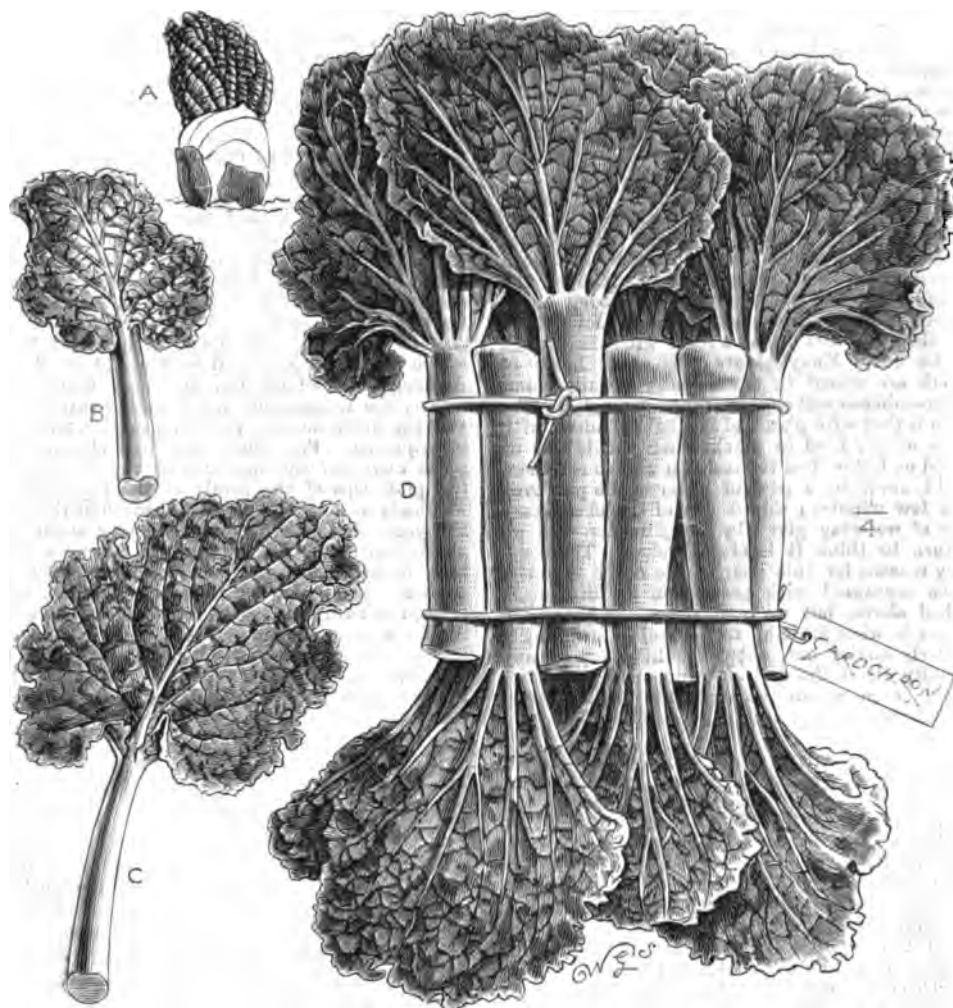


FIG. 75.—VARIETIES OF RHUBARB, GROWN UNDER THE SAME CONDITIONS, IN VARIOUS STAGES OF DEVELOPMENT.

A, Victoria; B, Linnaeus; C, Prince Albert; D, Daw's Champion.

(Scale of Sketch $\frac{1}{2}$ natural size.) See p. 234.

always a little one) stands against us, viz., the expense of protecting material. The question therefore is, what will render wall fruit secure from frost at small cost? To this question I would confidently say "Frigi-domo," in preference to anything I have ever seen or tried. The improved make, 3 yards wide, will protect fruit blossom on a 12 or 13 feet wall from any spring frosts we are ever likely to have, and it is most durable, for with care it will last for many years. Too much shading weakens the blossom and causes blight, and this should be guarded against. The wall coping at Perdeswell Hall, Worcester, was 18 inches wide, but not so wide as that at Osberton. My practice was to let down the blinds in the evening, and pull them up on to the coping as soon as the frost was off the trees in the morning, unless cold cutting winds prevail, in such cases the covering remained occasionally the whole of the day. The coping-

perly attended to the wood will ripen, but lose the first growth through blight, and the second does not always get thoroughly matured. With respect to flavour, glass walls in unfavourable and wet seasons are a great help, and improve the quality of the fruit; and where expense is no object, and labour plentiful, it is a plan that should be adopted. In other circumstances I would strongly recommend the use of "Frigi-domo" blinds in preference to any other material. *Edward Bennett, Farnborough, Hants.*

BOTANICAL NOMENCLATURE.—I cannot help agreeing with you in your observations on the recently published list of plants introduced from 1876 to 1886. It certainly would have been useful to those who, like myself, have no access to botanical and horticultural works other than what they themselves possess, to have had the name of

and juicy, and I consider the variety a most profitable one to grow for either home consumption or market purposes. It is a good grower, and an excellent bearer. At the present date, when home-grown Apples are scarce, we very highly appreciate this. *C. Price, Mitchelstown Castle Gardens, Mitchelstown, Co. Cork, April 7, 1900.* [This note was accompanied by capital, perfectly fresh, specimens of this well-known and popular Apple. Ed.]

RE-SALE OF POISONS BY SEEDSMEN.—The Pharmaceutical Society having given notice of appeal against the two decisions given in Mr. White's favour, and the case being an important one to seedsmen and florists, I hope that all interested will assist Mr. White to uphold the rights of the trade to sell all kinds of garden insecticides. Is it not a case in which the Nursery and Seed Trade Association could give its valuable aid? The best advocates should be engaged, and the case I hope may be settled for all time in favour of the seed trade, who from a common-sense point of view are the proper persons to sell such articles. The following circumstance may be of interest, and bears on the subject:—Scene: Seed-shop. *Customer:* Oh, good morning! how do you use Quassia chips? must I boil them? *Assistant:* Yes, Sir, it is best to boil them. *Customer:* Yes, and what quantity of chips per gallon of water? *Assist.:* About $\frac{1}{2}$ of a lb. *Customer:* Thanks; oh, and don't I have to use some soft-soap? how much of that? *Assist.:* Yes, about the same quantity as Quassia; can I sell you any chips, Sir? *Customer:* Oh, no, thanks; I have just bought some at the chemists. Exit, with 6s. 8d. worth of information free. Chemist gets the profit; the poor seedsmen nothing. I could relate similar instances, but I think this will suffice to show both gardeners and amateurs that considering the vast amount of information that seedsmen and their assistants are ever ready and willing to give, it is only just that, as far as possible, all things necessary for the garden should be purchased from the seedsmen, who has no desire to sell either pills or powders, but simply to conduct a lawful business in a straightforward manner. *D. Golding (Messrs. Saltmarsh & Son), Chelmsford.*

TULIPA KAUFMANNIANA.—As I have had this handsome Tulip since 1894, I have read with much pleasure the remarks made upon it by Mr. Mallet in the *Gardeners' Chronicle*, of April 7, p. 211. I can quite corroborate all that he has said regarding its hardness, its earliness, and its beauty. Since I first purchased it I have left it undisturbed in the border, and have given it no protection. To-day (April 7) it is as fine as it was the first season after it was planted. This says a good deal for its value in the garden, as it is not every Tulip which will stand a test such as this in the open air. For the rock-garden it is of great value, its low growth making it suitable for association with the many dwarf flowers which are quite at home there. Pretty as it is when in bud, it is prettier still when it opens in the sun. The charm is increased when, as I have often seen, there is a bee in the flower. *S. Arnott.*

BEES AND SNOWDROPS.—In his delightful article on "The Daughters of the Year," in your issue of April 7, your contributor, "Corycius senex," says "probably none of us have ever seen a bee upon a Snowdrop." While the bees may not enter the Snowdrop in some districts, I have often seen them doing so in my garden, especially in mild seasons when they came out of their hives before the Crocuses were fully in bloom. I fancy that Tennyson was justified in writing the lines quoted by your contributor, whose succeeding articles will be looked forward to with much interest. *S. Arnott, Carsethorn-by-Dumfries.*

SCILLA SIBIRICA VAR. TAURICA.—With reference to your note about this Scilla, which I mentioned in my articles on "Varieties of Scilla sibirica," I may say that *S. sibirica taurica* is the name of a variety which comes earlier than the type. It is of recent introduction, but it will be found in Messrs. Barr's catalogue for 1899, as well as in others. It is not the same as *S. bifolia taurica*, which I grow also. *S. Arnott.*

A LESSON ON AFFORDING WATER.—The "Answers" column has recently shown that the Cyclamen is proving troublesome at this season. The following notes from a recent paper by Wehmer suggest one cause of trouble. Plants of Cyclamen were observed to die off after

the leaves, and even flower-stalks had fallen over and withered. Closer examination showed that this was preceded by the bases of the stalks of apparently healthy leaves becoming swollen, soft, and discoloured; a few days later the leaf fell over and withered. In the diseased leaf-bases a fungus was found in active growth; it was one of the Botrytis forms, many of which have been described and illustrated in this paper. Observation suggested that careless watering was to blame for the presence of the fungus. Experiments were therefore made by pouring water into the flower-pots till the space above the soil was flooded and the leaf-bases stood in water. The water gradually drained away, but several plants so treated showed the above symptoms and became more or less diseased. Other plants watered slowly, so that the water passed at once into the soil, remained healthy. The explanation is that the Botrytis fungus is extremely common, especially under glass; for instance, one is almost sure to find it on withering leaves or flowers of Petunia or Pelargonium. When the pots are flooded in watering, the spores are floated up and into the space inside the broad leaf-bases; there they germinate, and probably pierce the skin of the leaf or flower-stalk. The fungus spreads rapidly, and in a few days renders the leaf-base soft, so that the leaf falls over by its own weight, and lies on the soil withering. The same experiments were carried out on Primula sinensis with similar results. The Cyclamen and Primula have both what are known as radical leaves, that is, the leaves are not borne on stems appearing above ground, but rise from underground root-stocks; thus the leaf-bases are on a level with the surface of the soil. Many plants with this habit of growth are reared in our houses; a walk round any greenhouse will suggest other examples. The lesson is that with plants of this habit (indeed with plants of any kind in pots), water should not be poured on faster than the soil can absorb it; there should never be a pool of water in the pot, even for a few minutes; this is one of the elementary rules of watering given by every writer, yet we venture to think it is often broken. There are many reasons for this simple rule other than the reason connected with prevention of disease described above, but we omit these. If the soil in the pot is what it ought to be, and if watering is regularly carried out, there should never be any difficulty about the soil absorbing the water fast enough, even where the stock of plants is large and time precious. *W. G. S., Leeds.*

THE WEATHER IN CORNWALL.—The weather here during March has been very changeable, but so far as rain is concerned, it was a distinct improvement upon that of the latter half of the previous month. The total rainfall was 2.64 inches, while in February 5.85 inches fell. The greatest fall during twenty-four hours was 1.19 inches, measured at 9 A.M. on March 20. The extremes of temperature, registered by a thermometer placed 2 feet from the ground, and facing due north, were 22° Fahr. on March 18, and again on the 27th; and 63° on the 10th. The weather on the last day named was quite summer-like, and in the afternoon I saw two yellow butterflies—the first of the year. The barometric pressure has been even, the average having been just over 30 in.; the lowest reading 28.64 in. at 1 P.M. on March 19, and the highest 30.70 inches at 9 P.M. on March 13. For Cornwall, the weather generally has been very cold; keen, gusty winds from N. or N.E. Heavy hailstorms occurred frequently, which alternated with dazzling bursts of sunshine. A small quantity of snow fell on March 1 and 17. On March 18 the clerk of the weather rang the changes on "sun, hail, snow, and sleet;" the next day he added rain to the list. At daybreak the following morning the ground was thickly covered with snow, which, despite a day's sunshine, remained all day. *A. C. Bartlett, Pencarrow Gardens.*

CALIFORNIAN SEEDLESS ORANGES.—Mr. Roupell does not say if he has compared these with the ordinary Oranges grown in California (p. 205), but the point is somewhat interesting to me, because I failed to discover any difference, either in texture or flavour, between the seedless or "Navel" Orange and the ordinary Spanish seedling when I visited Florida; and other persons who tested them out there were of the same opinion as myself. Since then I have had frequent oppor-

tunities of tasting both kinds from that country, and the result has been the same. I have never tasted a Californian Orange of any kind that I am aware of; and when I was in New York the price of the ordinary form was one shilling each. The Navel variety certainly has the advantage, being destitute of seeds, and is remarkable for its size, well grown specimens often rivaling the Grape-Fruit or Shaddock in that respect, but it is not a profitable variety to grow, being a very shy bearer. If seedless Mandarin and Tangierine varieties could be obtained, it would be a great advantage, the number of seeds the fruits of these varieties often contain being surprising. When eaten fresh from the tree, I consider no other variety approaches the Mandarin and Tangierine Oranges for delicacy of flavour. Moreover, they can be peeled and divided easily without soiling one's fingers, and the trees fruit enormously under good cultivation. They had the reputation of being somewhat tender in Florida, and since my visit (in 1890) I fear the disastrous frosts will have killed most of them, and many other beautiful plants in that unfortunate country. *W. H. Divers, Belvoir Castle Gardens, Grantham.*

FRUIT PROSPECTS FOR 1900.—Perhaps it is a little early in the season to say much about the prospects of the fruit crops, but the appearance of the trees at present gives every indication of there being a fine display of blossom on Apple, Pear, and Plum trees, which, if not injured by frost, and east winds, are sure to set well. The trees here ripened their wood remarkably well last autumn, and made clean healthy growths, and the branches are now literally bristling with strong plump fruit buds, which are not far advanced for the end of March. Although the winter has not been particularly severe, the temperature has been low throughout, and the flower buds have been greatly retarded in consequence. Pear buds are just showing the green casing of the flowers, and the Apple buds the pink tips of the petals at the top of them. The buds were much further advanced at this date last year. Brookworth Park Pear, on a south wall, was in full flower on the 30th of March, and the buds of other varieties were showing the flower trusses. A row of seven Pitmaston Duchess Pear, trained in bush-form by the side of one of the walks in the kitchen garden—20 feet high, and 12 feet through at the base—never looked better than they do now, and the sight will be a grand one when the trees are out in full flower. *A. Pettigrew, Castle Gardens, Cardiff.*

PARIS EXHIBITION.

PROGRAMME OF THE TEMPORARY COMPETITION FOR GARDEN PLANS.—The competition, in connection with the Paris Exhibition, will be held on June 17, and is open to French and foreign landscape gardeners, according to the limitations of a plan drawn to a scale of 0".001 per metre. This plan will be forwarded to all those who desire it, on application to M. le Président de la Classe 43, Rue de Grenelle 84, Paris.

Competitors should forward their work to the same address, between June 10 and 15. The following are the requirements:—

1. A plan of the whole scheme on the scale above mentioned, upon which the positions of the details are to be indicated.
2. A plan to the scale of 0".005 per metre, showing the surroundings of the mansion, and particulars of two flower-beds whose positions are indicated.
3. A lengthwise and a transverse section to scale of 0".005 of each of these beds. The sections to be on the same sheet with No. 2.
4. A list of plants, and a plan for the floral decoration of the same beds.

(The two plans should be coloured, and hung in light wooden frames, not larger than 1".25 by 0".85.)

Competitors must conform to the indications stated on the original plan: mansion, out-buildings, principal entrance and approach, kitchen-garden, water-courses, paths, and two-thirds of wooded ground, but may modify to their taste the outline of the woods, the height of the slopes, as well as the outline of the lake. The general rules of

the competition are the same as those for all the temporary horticultural exhibitions as regards the work of the jury and the allotment of the prizes.

The first five prize plans will remain on view as long as the Exhibition is open. The others may be removed at the end of the competition, notice to that effect being given to the committee by the competitors, or by those commissioned by them. No competitor may prepare more than one plan with the two designs specified above.

The designs will be exhibited in one of the halls placed at the disposition of the committee of Class 43. To cover the general expenses of the organisation and installation of the special competitions for garden plots, there will be required:—

1. A fee of 20 francs from all exhibitors who have already obtained entrance to Class 43 as regards the permanent Exhibition.

2. A fee of 50 francs from all other exhibitors.

The payment of these sums is to be made to M. P. Lebouf, treasurer of the committee, 14, Rue des Meuniers, Paris, or to one of the branches of the Crédit Lyonnais, to the account of the Comité d'Installation of Classe 43, open at the agency A. T. of the Crédit Lyonnais at Paris, and the fact should be notified to the treasurer of the committee. All enquiries should be addressed to M. le Secrétaire de la Classe 43, Rue de Grenelle 84, Paris. Secretary, Abel Chatenay; President, Viger.

SEVENTH SECTION OF THE INTERNATIONAL AGRICULTURAL CONGRESS AT THE PARIS EXHIBITION.

The seventh Congress will be devoted to the examination and discussion of methods for combating the parasites of cultivated plants, and also of protecting useful animals. The Congress will be held at Paris, July 1st to 8th.

The Committee of the Section is thus constituted:—*President*.—M. Prillieux; *Vice-Presidents*.—M. Caze (Edmond), M. Périer de Larsan (le comte du), M. Saint-René Taillandier; *Secretaries*.—M. le Dr. Delacroix, M. Gervais (Prosper).

Vegetable pathology will occupy a most important place in the work of this section. This may be seen by reading the following list of questions to be treated, which have been accepted by the Organisation Committee, and on which reports will be submitted to the Congress:—

1. International alliance for hindering the introduction of parasites and their dissemination when discovered; reporter, M. Cazelles.

2. Cryptogams and insects attacking the Coffee-tree; reporter, M. Delacroix.

3. Cryptogams and insects attacking the Sugar-cane; reporter, M. W. Went.

4. Cryptogams and insects attacking Fruit-trees grown in quantities (Apples, Plums, Olives, Chestnuts, &c.); reporter, M. Vermorel.

5. Nematode Parasites of Cultivated Plants; reporter, M. Ritzema Bos.

6. Diseases of various Tropical Plants (Vanilla, Clove, Ginger, &c.); reporter, M. Bordage.

7. On the measures necessary to ensure the protection of useful Birds; reporters, MM. Brands, Ohlsen, &c.

8. On Rust in Cereals; reporter, M. Eriksson.

By a special arrangement, the admission cards of members of the Congress will include the right of entry to the Exhibition during the week, July 1 to 7.

Those connected with the Congress paying their fee (20 francs) before May 31 will receive forms entitling them to railway-tickets at half-rates.

All subscriptions or enquiries should be addressed to M. Henry Sagnier, Secretary-General of the Committee of Organisation, 106, Rue de Rennes, Paris.

THE WEATHER IN WEST HERTS.

FOR nearly a month there has been only one unseasonably warm day, and only three unseasonably warm nights. Indeed, the most noteworthy feature

of the present spring up to the present time has been the small number of unusually warm days—so far, we have had only two, and then the shade temperature did not rise above 57°. At no time during the past week did the exposed thermometer show more than 8° of frost. The ground still remains cold, and is now about 2° colder than is seasonable at both 2 feet and 1 foot deep. Rain fell during the week on six days to the total depth of about three-quarters of an inch; the fall on the 3rd amounted to less than four-tenths of an inch, and yet we have to go back to February 27, or for five weeks, to find a day as wet—showing how



FIG. 76.—POLEMONIUM CONFERTUM: PURPLE FORM.

(See "Awards," under Floral Committee, Royal Horticultural Society's Report, p. 289.)

dry the weather has recently been. Since the beginning of the present month the sun has shone on an average for about five hours a day, which is rather in excess of its seasonable duration. *E. M., Berkhamsted, April 10.*

NURSERY NOTES.

ORCHIDS AT MESSRS. F. SANDER & CO.'S.

GRADUALLY the space devoted to raising and cultivating hybrid Orchids at this nursery has encroached on that which is set apart for other plants, and by the time that the thousands of hybrid Cypripediums, Lælias, Cattleyas, Lælie-Cattleyas, &c., now in small pots have reached flowering size, a very large proportion of the glass now holding the imported Orchids will be required for the former. Still the work of raising the hybrids and crosses goes on.

Among the home-raised Orchids is a small group of plants consisting of the reverse cross to Epiden-

drum × Endresio-Wallistii, known as *E. × Armstrongi*. In this cross *E. Endresii* was the seed-bearer, and it was apparent that in habit of growth and shape of flowers, the crosses resemble *E. Endresii*, although they are much larger, and of a violet and white colour. Some showy crosses of *Phaius Humbloti* and *P. tuberosus*, with the Indian section of *Phaius*, were noted; and a remarkable feature in the progeny is the number of large, handsomely-coloured flowers, borne on very young plants.

Of Cypripediums flowering for the first time, we may call attention to *C. × Fairy Queen* (*Curtisii × Druryi*), a very distinct cross; and a handsome variety obtained between *C. × nitens superbum* and *C. Chamberlainianum* (? *C. × James K. Polk*, *American Gardening*, March 24, p. 200). This is one of the prettiest of *C. Chamberlainianum* crosses. The upper sepal is of a yellowish-white tint with a green base, and furnished as regards the lower portion with chocolate-purple lines. The petals are horizontally poised, of a yellowish-white with markings of purple, and wavy at the edge. The lip is spotted and freckled with rose colour, and the margin yellowish. Other crosses in bloom were *Epiphrontis × Veitchi*, various *Dendrobiums*, and among the *Epidendrums* the new *E. × Burioni*.

In an *Odontoglossum*-house, a small collection of hybrid *Odontoglossums* were objects of interest. The greater number consisted of the section placed by Reichenbach under *O. × lanceana*, when he found that those formerly distinguished as *O. Ruckerianum*, *O. Andersonianum*, &c., merged one into the other whenever a sufficient number of them could be got in flower together; this, notwithstanding there were many showy and very distinct looking flowers among them. One hybrid presented curious features: in colour it is much like *O. × Andersonianum*, but the sepals and petals are broader, and the shield-shaped, fimbriated, apiculate lip more suggestive of *O. × Adrianae*. The sepals and petals are creamy white, furnished with a few purple spots. The very showy lip white with a yellow disc, the sides having a very curious set of small purple markings with some larger spots in the front. A number of good *Odontoglossum* crispum, *O. Pescatorei*, *O. triumphans*, the pretty little *O. nevium*, and a very handsome type of *O. luteo-purpureum*, were remarked in the cool houses. Among imported plants of Cypripedium insigne montanum, we observed a pretty new form with well shaped yellowish flowers distinctly marked with purple, the orbicular dorsal sepal having an even band of snow white, making a striking change from the usual type in which the white is more or less confined to the upper half. Other noteworthy Cypripediums in bloom were *C. concolor* Regnierii variety, *C. nivenum*, and *C. Lawrenceanum pictum*, with a very showy and finely-coloured dorsal sepal.

The large *Cattleya*-houses contained some plants in flower of *C. Trianaei*, *C. Schroderae*, *C. Lawrenceana*, and *C. Mendeli*; and among the last-named one with flowers almost wholly of a Peach-blossom tint. One group consisted of showy *Odontoglossums* in variety, arranged together with excellent examples of *Miltonia cuneata*, *Lælia Jongheana*, *Ada aurantiaca*, *Lycaste Skinneri*, and its pure white variety; and *Cochlidia Noealana*. At the end of one of the houses, hybrid *Anthuriums* are arranged with the Orchids. One of these cross bred *Anthuriums* possessed foliaceous spathes, the basal parts being of a red tint, and the apical green, and developed as a leaf.

Plants in flower comprised *Dendrobium Madonna*, a very pretty species, *D. Phalenopsis*, *D. atrovillosum*, *D. thyrsiflorum*, and others of the showy species. We may mention as being remarkable examples of good cultivation, a large number of *Anaclochilus*, including the rare *A. Ortgiesii*; a number of healthy *Phalenopsis*; and some gigantic plants of *Vanda Lowi*. The new plant-houses contained many promising novelties, including a new set of hybrid *Caladiums* raised out of *C. albanense*. In coloured foliage-

plants a new *Heliconia* with rose-red leaves, promises to be a worthy companion to the handsome *H. Sanderi*. *Jasminum Maingayi* is a floriferous white-flowered plant which may be flowered either on large or small plants. *Pteris argentea* with finely divided silvery fronds, will make a good decorative plant; and the yellow-spotted *Dracena Godsefiana* with its fragrant flowers and scarlet berries, still holds its own, though no longer a novelty.

HIPPEASTRUMS AT MESSRS. J. VEITCH & SONS' NURSERY.

The "Amaryllis" house at the King's Road establishment is once more exceedingly gay with bulbs in bloom; a thousand at least occupying the centre bed, whilst young unflowered ones fill the beds at the side of the house. It seems useless to look for any striking departures in the way of colouring, or improvements in form, the limit to both of which seems to have been reached. Messrs. Veitch think that now that scarlet, crimson, and cerise of varying shades have become common, efforts should be made to create a yellow flower; and Mr. Heale, who has the charge of them, is not without hope that he has already secured the beginnings of the desired "yellow race."

We were glad to observe that green, that capital foil to vivid colouring, is not yet eliminated from every new variety, and we hope they will not succeed in getting rid of it. Of new raisings flowering for the first time in 1900 are the following:—*J. H. Veitch*, a superb flower of dark crimson, of a velvety texture; segments broad, with a real black patch at the bottom of the flower to enhance its beauty. No. 637, a fine bloom of greenish-white, flaked and flamed with a powdered kind of crimson; *Titan*, a pretty, pure white bloom, flamed with cherry-red; *Harpagoes*, an equally large and well formed bloom of a shade of crimson; a self with darker reticulation; *Lady Roberts*, a handsome white bloom, with a few faint crimson stripes; *Naidas*, also white as regards the ground, but flaked boldly with crimson, a fine bloom of symmetrical shape; *Zeyphr*, a large, smooth, regularly-formed bloom of a cherry-red tint, with white at the margins of the segments; *Hidalgo*, a bloom, regular in regard to form, of a deep crimson self, excepting for some traces of green colour at its base; *Arima*, a pretty middle-sized crimson self, of good form; *Labron*, also a showy crimson self; *Khaki*, and several more, raised from seeds produced by one and the same seed-pod, show faint traces of a yellow colour, from which it is hoped better results will be obtained in the future; *Cyturus*, a large-flowered brilliant scarlet self, with green bands extending half-way up from the base of the perianth; *Lycius*, a fine cerise on a white ground, and the form good; and *Avondale*, a nice orange-scarlet bloom.

IRELAND.

THE weather for the current month is pleasant, but there has been keen wind, and a slight rainfall. It is feared, the Daffodil display at the spring show this week will not be so good as usual.

THE QUEEN'S VISIT.

The streets of Dublin and the surrounding districts present a gay aspect. The decorations at Kingstown were very lavish, and reflects credit on Messrs. Ramsay & Son, Ballsbridge, Dublin, who were mainly entrusted with the festooning, and who supplied the bouquet presented to Her Majesty, on her landing, by Miss Robinson. It was composed of Orchids, principally *Cattleya Mendeli*, *C. Schroderiana*, *Odontoglossum crispum*, and *Cypripediums*, but General Jacqueminot *Roses*, white *Lilac* and *Lily* of the Valley were interspersed. The newly-erected city gates were furnished with Irish Yews.

THE GARDENERS' ASSOCIATION OF IRELAND.

The members of the above society held their usual monthly meeting in D'Olier Street, Mr. O'Kelly (President) occupied the chair. Mr. McFadyen contributed a paper on "Cottage Gardening," and Mr. R. Weller, one on "Grafting."

SOCIETIES.

ROYAL HORTICULTURAL.

APRIL 10.—There was a very interesting display at the Drill Hall on Tuesday last.

Orchids were not extensively shown, but the exhibits contained many novelties, and the Orchid Committee recommended three First-class Certificates, two Botanical Certificates, and five Awards of Merit.

It was the Floral Committee that had to deal with the great majority of the exhibits, and this body awarded more distinctions to new plants than it has done for many months past. There were two Awards of Merit to *Hippeastrums*, three to *Azaleas*, two to *Rhododendrons*, one to *Rose L'Innocence*, one to *Pyrus Malus angustifolia*, and one to *Polemonium confertum* var. *melitum*. Groups of forced flowering plants, cut blooms of *Roses*, *Sikkim Rhododendrons*, &c., were very extensively shown. The hardy *Azaleas* were beautiful, and the new varieties given Awards of Merit will be greatly appreciated. *Camellias*, and a few other of the hard-wooded greenhouse plants were also to be seen in a few collections.

The Fruit and Vegetable Committee made no award to novelties. There was a collection of Apples from Messrs. J. CHEAL & SONS, ripe Strawberries from the Duke of Northumberland, and excellent tubers of *Syon House Prolific Potato*, from J. B. JOEL, Esq.

The *NARCISSUS* was more in evidence than at the last meeting, and there were several collections staged. The season is decidedly late, however, and not until the end of April will *Daffodils* and *Narcissus* be really at their best. The next meeting will probably be the best *Daffodil* display of the season, and a paper upon *Narcissus* is to be read then.

Two Awards of Merit were recommended by the *Narcissus* Committee on Tuesday last, one to a variety exhibited by a Guernsey cultivator and another to a variety from the Rev. Engleheart. The lecture in the afternoon was by Rev. Geo. Henslow upon "Some of the Plants Exhibited."

Floral Committee.

Present: W. Marshall, Esq., Chairman; and Messrs. C. T. Druery, H. B. May, R. Dean, R. B. Lowe, W. Bain, J. D. Pawle, Chas. E. Pearson, George Gordon, Chas. E. Shea, E. H. Jenkins, H. J. Cutbush, W. J. James, Harry Turner, Geo. Paul, E. T. Cook, J. W. Barr, J. Fraser, and Ed. Mawley.

Messrs. J. HILL & SON, Barrowfield Nurseries, Lower Edmonton, London, made a considerable exhibit of Ferns, showing on this occasion quite young plants of the varieties represented. Most of these were kinds that produce tinted fronds, and the harmonious blending of the colours in these was most gratifying. There were many *Adiantums*, such as *A. scutum roseum*, *A. Collisii*, the dense habited *A. Legrandi*, *A. cyclosorum*, and *A. rhodophyllum*. The pretty *Doodia aspera multiloba*, *Blechnum occidentale*, *Pteris tricolor*, *Athyrium Goringianum pictum*, *Pteris argyrea*, the old *Osmunda regalis*, &c. (*Silver Banksian Medal*).

Camellias were again shown by Messrs. W. PAUL & SON, Waltham Cross, Herts, and though there was greater wealth of bloom in the Drill Hall on Tuesday than when *Camellias* were shown in February and March, they nevertheless were exceedingly attractive and showy. *Cytisus praecox alba*, several varieties of the Peach, *Syringa*, *Forssythia suspensa*, *Prunus sinensis fl.-pl. alba*, a very pretty plant, with pure white, button-like flowers; and several other species of flowering plants were included in the exhibit from Waltham Cross (*Silver-gilt Banksian Medal*).

Zonal *Pelargoniums* were grandly shown by Messrs. H. CANNELL & SONS, Swanley. They had upwards of thirty large sprays, in as many varieties, all of them choice, and most of them perfectly distinct. The new mammoth scarlet, *The Sirdar*, was dazzling in its brightness, and was nearly four inches across; it is certainly the best of the scarlet-flowering varieties. *Snowstorm* and *Niagara* were good whites, Mrs. Ewing, Conan Doyle, and Ian MacLaren, very pretty pinks. *Majestic* and *Lord Reay*, purple crimsons, and *Nicholas II.* and *Souvenir de W. B. Miller*, bright crimsons. There were also pretty shaded varieties, in which the centre of the flower was lighter or darker than the extremities of the petals. All of them showed the advance that has been made in these plants. The only double-flowered variety was *Miss Ashworth*, the one that gained an Award of Merit at the last meeting (*Silver Flora Medal*).

Messrs. W. CUTBUSH & SON, Highgate Nurseries, London, N., showed a group of flowering-plants, in which varieties of *Epacris* were a feature. All of the best varieties of these very pretty, partially neglected plants were shown in bloom, together with some of the prettier *Ericas*, such as *E. Wilmoreana*, *E. persoluta alba*, *E. candidissima* (very nice pure

white), *E. Cavendishi* (yellow), &c., *Cytisus Andreanus*, *Magnolia Lennie*, with deep pink flowers; double *Lilac Madame Lemoine*, pure white; &c.

Messrs. R. & G. CUTBERT, Southgate Nurseries, Middlesex, made a glorious exhibit of hardy *Azaleas*, each of the plants being quite covered with their showy blossoms. The prevailing colours were reddish-rose, instanced in such varieties as *Consul Pecher*, *Consul Ceresole*, &c.; and rich but terep-yellow, furnished by that superb variety, *Anthony Koster*, and a bright red colour in *Alphonse Lavallée*. Varieties of *A. pontica* were included, and helped to produce the beautiful effect the exhibit showed. A new Japanese variety, known as *Yodogama*, was shown with semi-double or double flowers, of mauve colour, with deeper spotting on upper petals. *Staphylea colchica*, *Sambucus racemosa plumosa aurea*, the flowering Currant, and several varieties of *Lilac*, also *Magnolia conspicua*, &c., were likewise in the group (*Silver Flora Medal*).

Mr. JOHN RUSSELL, Richmond Nurseries, Surrey, made a display with hardy *Azaleas*, principally of the *Mollis* section. The varieties shown were almost all yellow flowered, varying in degree of tint from pale lemon to rich butterscup-yellow. The palest was *A. mollis* × *sinensis*, *Queen Victoria*. A large number of seedlings were shown, and many of them were very good. Mr. RUSSELL also showed a group of forced plants, such as *Azaleas*, *Viburnum Opulus*, and *V. plicatum*, *Andromeda* (*Zenobia*) *speciosa*, &c. (*Silver Banksian Medal*).

A very interesting group of alpine plants in flower was shown from the garden of PURNELL PURNELL, Esq., Woodlands, Streatham Hill (*Silver Banksian Medal*).

Messrs. B. S. WILLIAMS & SON, Upper Holloway, London, N., showed a large group of forced flowering plants, the *Lilacs* and *Azaleas*, *Deutzias*, *Viburnums*, *Crataegus*, *Karria japonica*, &c., were all very well shown (*Silver Flora Medal*).

Messrs. PAUL & SON, Old Nurseries, Chessant, had a pretty group of *Roses* in pots, several of the varieties shown being new ones. Miss Ellen Willmot, a white or tinted *H.T.*, *Madame E. Backaisley* (China), and *Eugenie Lamesch* (*Polyantha*), were noticeable. Two standard trees in bloom of *Paul's Carmine Pillar*, plants of *Hippeastrums*, and of several species of hardy plants, were also shown.

Messrs. FRED & SONS, Roupell Park Nurseries, Norwood, showed a group of miscellaneous flowering plants, including *Clivias*, *Azaleas*, &c.

Mr. Jas. HUDSON (gr. to LEOPOLD DE ROTHSCHILD, Esq.), Gunnersbury House, Acton, showed a growth in flower of *Maranta Warcewiczii*. The double-pale lemon flowers are produced in the axils of the leaves.

A plant three feet high of *Calceolaria violacea*, a shrubby species that produces small flowers of pale mauve colour was exhibited. The interior of the flower is very pretty, there being a blotch of yellow on the base, and a number of purple spots.

A magnificent *Anthurium* was shown by Sir TREVOR LAWRENCE, Bt., Burford, Dorset (gr., Mr. Bain). It was named *Burfordiense*, and is an exceptionally good variety of *A. Scherzerianum*. There were seven very large spathes (*Cultural Commendation*).

Messrs. F. CANT & CO., Braintree Nurseries, Colchester exhibited about one hundred beautiful blooms of an extensive variety of *Roses*. Such varieties as *Madame de Watteville*, *Catherine Mermet*, *Marquise Litta*, *Ethel Brownlow*, *Edith Gifford*, *Medea*, and others were represented in bright-coloured, sweet-scented blossoms (*Silver-gilt Banksian Medal*).

Mr. GEO. MOUNT, Canterbury, made a glorious display with cut *Roses*, showing many of them with long stout stems attached, and thick healthy foliage. The usual varieties that Mr. Mount has exhibited, such as *Mrs. John Laing*, *Niphetos*, *Catherine Mermet*, *Captain Hayward*, &c., were the most conspicuous (*Silver-gilt Flora Medal*).

A grand exhibit of flowers of hardy *Rhododendrons* was shown by D. H. SHILSON, Esq., Tremough Gardens, Panrya, Cornwall (gr., Mr. R. Gill). The greater number of these were varieties of *R. arboreum*, and an exceedingly great variety of colour was presented by them, from white to deep scarlet. All of the seedlings shown were raised by the exhibitor, and are valuable varieties. *R. barbatum*, with crimson flowers, several varieties of this, and a hybrid between it and *R. Thompsoni*, were shown. The last-named was recommended an Award of Merit. Even *R. Dalhousiae* is now in bloom out of doors in Cornwall. The whole exhibit not only showed how beautiful and showy are *Rhododendrons*, but also what an early climate is that of Cornwall, and what a fine collection of *Rhododendrons* is that at Tremough. The best of the *R. arboreum* seedlings was a beautiful rose-coloured flower of large size, named *Mrs. Henry Shilson* (*Silver-gilt Flora Medal*).

Stangeria paradoxa in fruit was shown by Mr. WM. BULL, King's Road, Chelsea. Mr. BULL had also several new varieties of *Codium*.

Messrs. WILLIAMS & SON, Victoria and Paradise Nurseries, Holloway, showed several tree *Carnations* in flower, including *Mrs. Leopold Rothschild* (pink), and *John Peter Ragus* (deep red), also *Blagdon Surprise* (white).

Messrs. WALLACE & CO., Kilnfield Nurseries, Colchester, showed a few choice hardy bulbous plants in pots, most of them having been lifted from the open ground. These were *Iris stylosa speciosa*, *I. asyrica*, a pure white flowering variety; *Tulipa Kaufmanniana*, a really beautiful *Tulip* species now in bloom in the open; *Anemone blanda Synthetica*, *Fritillaria pudica*, and a reddish variety of *F. aurea*, also several varieties of *Erythroniums*.

Messrs. GEO. JACKMAN & SON, Woking, showed a few hardy plants in bloom, including *Muscaria*, *Anemones*,

Cypripedium pubescens, *Primula cashmeriana*, *Chionodoxa*, &c.

Awards.

Azalea Duchess of Wellington.—A surprisingly pretty variety of the "Ghent" type. Flowers pale pink, upper petals delightfully marked with deep red. From Messrs. R. and G. CUTBERT (Award of Merit).

Azalea Madame A. de Smet.—A pretty white variety of *A. mollis*, with yellow buds. From Messrs. PAUL & SON, Old Nurseries, Cheshunt (Award of Merit).

Azalea Mrs. A. E. Edits.—Described as a cross between *A. mollis* and *A. sinensis*, though these are held to be names of one species only. This new one is a glorified Anthony Koster, being deeper in colour and larger in size than that variety, but possibly the habit of the plant may be less satisfactory. From Messrs. R. & G. CUTBERT, Southgate (Award of Merit).

Hippocrepis (Amaryllis) Zephyr.—A very fine variety with widely expanding large flowers, colour cerise-red and white, with green centre. From Messrs. J. VEITCH & SONS (Award of Merit).

Hippocrepis Titan.—A large flower of great substance, and a considerable advance towards a fully white flower. The lower petals have very little colour upon them, but the three upper ones are marked with cerise-red. From Messrs. J. VEITCH & SONS (Award of Merit).

Polemonium confertum var. melitum.—A white flowered variety said to come from a lower level on the Rocky Mountains than does the type, and therefore more easily cultivated. From J. JACKMAN & SON, Woking (Award of Merit).

Pyrus Malus angustifolia fl. pl..—A very pretty, large-flowered Apple, pale pink. Flowers $2\frac{1}{2}$ inches across. From Wm. PAUL & SON, Waltham Cross Nurseries (Award of Merit).

Rhododendron H. Elliott.—A very beautiful white greenhouse *Rhododendron*, with a lemon yellow tint on the upper petal. The foliage is like that of *R. Edgeworthii*. From Messrs. H. & J. ELLIOTT, Courtbush's Nurseries, Hurstpierpoint (Award of Merit).

Rhododendron Shilani, a variety obtained from a cross between *R. barbatum* and *R. Thompsonianum*. The flowers are intense crimson, of good form, and produced in fine clusters. From D. H. SHILSON, Esq., Tremough, Penryn, Cornwall (Award of Merit).

Rose L'Innocence, a pure white Hybrid Tea Rose, pretty generally known. From Messrs. PAUL & SON, The Old Nurseries, Cheshunt (Award of Merit).

Orchid Committee.

Present: J. Gurney Fowler, Esq., in the Chair; and Messrs. Jas. O'Brien (Hon. Sec.), de B. Crawshaw, H. Ballantine, H. Little, F. Sander, J. T. Galriel, H. J. Chapman, H. A. Tracy, W. H. White, J. Jaques, E. Hill, N. C. Cookson, R. Brooman-White, C. J. Lucas, W. H. Young, H. T. Pitt, and J. Douglas.

SIR FREDERICK WIGAN, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young), staged a very effective group of excellently cultivated Orchids, for which a Silver Flora Medal was awarded. A fine plant of the handsome *Eulophiella Elisabetha* occupied the centre, and around it were good examples of *Odontoglossum Rosellii majus*, with from one to two dozen flowers each; *O. Schillerianum*, *O. x Andersonianum*, and three pretty allied hybrids; several good *O. crispum*, *O. gloriosum albens*, *Ada aurantiaca*, and *Laelia harpophylla*, giving bright orange-scarlet colour; *Phalenopsis Sanderiana*, *P. amabilis*, varieties of *Dendrobium nobile*, *D. Kingianum*, *D. albosanguineum*, the singular *Megacallium falcatum*, *Laelia x Olivia*, with orange coloured flowers and crimson-tinted lip; *L. Euterpe*, *Cattleya Schroderae* and *C. Mendelii* varieties; *Trichopilia suavis*, *Miltonia Roezlii* alba, and *M. R. splendens*, *Cynochis purpurascens*, *Epidendrum Stamfordianum*, and several good *Cypripediums*.

H. T. PITT, Esq., Roslyn, Stamford Hill (gr., Mr. Thurgood), received a Silver Flora Medal for an excellent group, containing many exceptionally good forms of popular species, among which were noted a grand form of *Miltonia vexillaria*, with very large, bright purplish-rose flowers, the lip having a white disc, with a few red lines; several very richly coloured forms of *Odontoglossum x Ruckerianum*, *Miltonia x Bleniana nobilior*, good *Odontoglossum crispum*, one with large purplish blotches on the sepals; *Cologyne Sandersi*, a showy species of the *C. Cumingi* class; the pretty and rare *Thrixspermum Berkeleyi*, some good *Miltonia Roezlii*, *Dendrobium aggregatum*, *Cypripedium Lawrenceanum* Hyeanum, &c.

SIR TREVOR LAWRENCE, Bart., Barford (gr., Mr. W. H. White), showed fine examples of *Dendrobium x aureo-Wardianum*, with yellow flowers, having a red-brown blotch on the lip; *D. superbum*, and its nearly white variety, *D. s. Huttomii*; *D. x Rolfeae*, the light-coloured *D. nobile Murrinianum*, *Laelia flava Cowani* and *Polystachya laxiflora*.

DE B. CRAWSHAW, Esq., Rosefield, Sevenoaks (gr., Mr. S. Cooke), again showed the fine *Odontoglossum triumphans* Raymond Crawshaw, illustrated in last issue of *Gard. Chron.*, and *O. triumphans* Rex, a very handsome large yellow flower, and distinctly blotched with red-brown; together with a small plant, bearing one flower, of another fine *O. triumphans*, which promises to develop into a superb variety. In the group also were *O. x Andersonianum* Venus, a fine addition to an already large class; *O. x Mrs. De B. Crawshaw*, a finely-formed variety, exhibiting but a few blotches on the inner parts of the sepals; *O. x mulus Crawshawiana*, a large, distinct flower; *O. Rosellii rubescens* Rosellidense, and other varieties.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nurseries, Chelsea, showed a new form of their fine *Laelia x Digbyano-purpurata*, in which the fringing of the lip was well developed; and to distinguish it from that previously shown it was named "fimbriata." The flowers were much more like *L. C. x Digbyano-Mossii* than that originally shown, having similar colour, viz., white, tinged and veined with rose. Messrs. VEITCH also showed *Cypripedium x Hiero* (Chamberlainianum δ , Lawrenceanum η), *Dendrobium x Cordelia alba*, *D. x Socius* (nobile δ , splendissimum η), of which three plants were shown all dissimilar, the one being brighter in colour than *D. nobile nobiliss*, and with more compact flowers; another of the form of *D. x splendissimum*, but of a very rich colour; the third being intermediate in character.

MR. H. A. TRACY, Amyand Park Road, Twickenham, showed *Miltonia Roezlii splendens*, a very large and finely coloured flower; and *Dendrobium atro-violaceum splendens*.

Messrs. F. SANDER & CO., St. Albans, had a group, in which was a very handsome and distinct hybrid *Odontoglossum* of the *O. x Adriane* class, with fine cream-white flowers densely spotted on the segments with chestnut-brown, and having a clear white margin; also other hybrid *Odontoglossums*; some good examples of *Dendrobium Phalenopsis Schroderianum*, *Cattleya x calumnata*, Sander's variety, with large bluish-white flowers, prettily spotted with purple, the base of the lip being white, the front lobe rose-purple; *Dendrobium Huisiformum*, *Cypripedium x Merops* (ciliolare \times Druryi), and other hybrids.

MR. A. FISHER, Farningham Road, Tottenham, showed *Cypripedium x (insigne albo-marginata x concolor)*.

Awards.

FIRST-CLASS CERTIFICATES.

Cattleya intermedia, Fowler's variety, from J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr., Mr. Davis). The largest and most beautiful form of *C. intermedia*, the flowers being as showy as, and somewhat resembling, a good *L. C. x Schilleriana*, though the pollinia shows it to be a true *Cattleya*, and the growth of the plant confirms it. The plant bore a fine head of white flowers, the large and broad front of the lip being of a glowing crimson-purple.

Cattleya Schroderae, Pitt's variety, from H. T. PITT, Esq., Roslyn, Stamford Hill (gr., Mr. Thurgood), a most extraordinary colour variation in the usually light-coloured species, the colours in this being as dark and bright as in ordinary *C. labiata*. The plant had the characteristic fragrance of *C. Schroderae*. Sepals and petals light lilac, lip dark ruby-red in the centre, the other portion being of a rose-purple hue with crimped lavender-coloured margin. The orange colour usually seen in the labellum of the species was merged in the purple of the front lobe.

Leptocattleya Burtii, Pitt's variety, from H. T. PITT, Esq., Roslyn, Stamford Hill. A fine form of the plant commonly known in gardens as *Batemanii Burtii*. The plant shown had a large star-shaped, wax-like flower, white on the inner parts of the segments, with a few purple lines at the base of the petals, the outer portions being beautifully coloured with light brown. In colour it resembles the variety *Wallisii*, but the sepals and petals are slightly shorter and broader.

AWARDS OF MERIT.

Phalenopsis x Lally Rothschild (Sanderiana \times intermedia Brymeriana).—From Messrs. HUGH LOW & CO. A fine hybrid with bright colours and showy flowers. The sepals and petals are white, with the middle portions beautifully tinged and marked with minute dotted lines of rose-purple. The base of the lip is white, with a yellow callus, and bearing purple spotting. The front lobe dark reddish-rose.

Laelio-Cattleya x Rosalind superba (Dominiana δ Trianae η).—From Messrs. JAS. VEITCH & SONS, Chelsea. A showy flower, with pale lilac sepals and petals, the front of the lip ruby-red. The original form was illustrated in the *Gardeners' Chronicle* January 2, 1897, p. 3.

Epidendrum x Clarissa (elegantulum δ Wallisii η).—From Messrs. JAS. VEITCH & SONS. Flowers resembling *E. x Endresio-Wallisii*, but larger; sepals and petals white with reddish markings; lip violet with white base and margin.

Cypripedium x J. Gurney Fowler (barbatum Crossii δ , Godefroye η).—From Messrs. JAS. VEITCH & SON. Flowers white tinged with purple, and with some dotted lines of a purple colour on the petals and dorsal sepal. The original shown by Messrs. HUGH LOW & CO., March 27, 1894, was the reverse cross (syn. *C. x Sirius*).

Odontoglossum luteo-purpureum Mossii.—From DE B. CRAWSHAW, Esq. Flowers large, yellow, with the greater part of the sepals and petals blotched with chocolate-brown. Lip large, white, with a large brown blotch in front of the crest.

BOTANICAL CERTIFICATE.

Polystachya laxiflora.—From SIR TREVOR LAWRENCE, Bart. (gr., Mr. W. H. White), a singular little plant, in growth like *Trichostema suavis*, and bearing clusters of white flowers.

Eulophiella tristis, from A. H. SNEE, Esq., The Grange, Hackbridge (gr., Mr. Humphreys), a singular little species, from Western Africa, with densely branched inflorescence of greenish flowers, with purple labellums.

CULTURAL COMMENDATION.

To Mr. DOWNES, gr. to JOHN T. BENNETT-POLK Esq., Holme-wood, Cheshunt, for a basket of well flowered *Laelia harpophylla*, grown in a cool-house.

Narcissus Committee.

Present: J. T. BENNETT-POLK, Esq., in the Chair; Messrs. Willmott, Revs. G. H. Engleheart, S. E. Bourne, Messrs. C. Scrase-Dickins, J. Walker, W. Goldring, A. Kingmiff, P. R. Barr, W. Poupart, R. Sydenham, J. Pope, J. H. de Graaf, G. Titheradge.

Narcissi were still fewer than is usual at this date, and it is probable that they will this year extend well into May.

Two flowers only received an Award of Merit, a full double form of the ordinary *Campanelli Jonquil*, from W. MANOR & SON, Guernsey; and a large trumpet "Alma," from the Rev. O. H. ENGLHEART, of a singularly beautiful soft pale canary-yellow—a rare colour. Messrs. MANOR & SON, Guernsey, also sent a very large bicolor seedling, "Avenir," which the committee desired to see again.

Messrs. C. SMITH & SON, Guernsey, sent a large form of *N. tridymus*, "St. Patrick."

Messrs. BARR & SONS showed several pots of hybrids between *N. poeticus ornatus* and *N. Tazetta*; they were desired to exhibit them later on from the open ground.

Messrs. BARR'S Silver Cup was awarded to a fresh and well-staged collection from Messrs. F. CURRY, Lismore, Ireland. Some rarities, such as double *cernuus*, were finely shown.

Messrs. BARR received a Silver Flora Medal for a large and comprehensive bank of Narcissi in all the sections, the best thing, perhaps, being a quantity of unusually fine Sulphur Crown.

Fruit and Vegetable Committee.

Present: Philip Crowley, Esq. (in the Chair); and Messrs. Jos. Cheal, A. F. Barron, E. Shaw Blaker, W. Wilks, A. H. Pearson, Alex. Dean, S. Mortimer, H. Markham, W. Bates, W. Farr, Geo. Woodward, Geo. Wythes, F. Q. Lane, James Smith, Ed. Bockett, Geo. Bunyard, and M. Gleeson.

Delicious-looking ripe Strawberries Royal Sovereign were shown by Mr. Geo. Wythes, gr. to the Duke of Northumberland, Syon House, Brentford (Cultural Commendation).

MR. D. HAZLEWOOD, Partington Park Gardens, Leeds, showed a good-looking Cucumber; and Messrs. LAXTON BROS., Bedford, a dish of Apples named *Desain de Bouff*, but no award was given in either case.

Some splendid tubers of Potatoes Syon House Prolific were shown by J. B. JOEL, Esq., Northaw Gardens, Potters Bar (gr., Mr. May). This is a valuable variety raised some years since by Mr. Wythes. By the exhibitor it was described as excellent in quality, a good keeper, heavy cropper, and not subject to disease.

Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley, showed a collection of fifty dishes of Apples in as many varieties. These included culinary and dessert varieties, and the fruits were, most of them, of very fresh appearance for the present date of season. The varieties were chiefly well known ones, but there was one dish of Parquet, a new Apple raised by Mr. Ross, of Welford Park Gardens, and which has been given an Award of Merit by the Royal Horticultural Society (Silver Knightian Medal).

THE SCOTTISH HORTICULTURAL ASSOCIATION.

APRIL 3.—At the monthly meeting on the above date a lecture was given by Mr. D. P. LAIRD, of the Pinkhill and Frederick Street Nurseries, Edinburgh, on "Ornamental Trees and Shrubs for Town and Villa Gardening." Mr. Laird divided his subject into ten divisions:—1, locality; 2, aspect and exposure; 3, nature of soil, drainage, &c.; 4, preparation of ground; 5, selection of trees for towns and gardens; 6, selection of shrubs for towns and villas; 7, arrangement of trees and shrubs in villa grounds and public parks; 8, planting; 9, after treatment—staking, watering, protection, &c.—with guards; 10, the selection of ornamental trees and shrubs which are most suitable for towns and villa gardening.

ROYAL CALEDONIAN HORTICULTURAL.

THE spring show of this society took place on Wednesday and Thursday, 5th and 6th inst., in the Waverley Market, Edinburgh. The event seemed abnormally early. The season so far is a fortnight at least behind the calendar. The old-fashioned winter has been severe and long, and March has not died like a lion or a lamb, but was smothered in one of the thickest yellow fogs ever seen or felt in Edinburgh. All this made the sight and smell of spring flowers specially welcome.

This venerable Society, established in 1809, is still prosperous, though in common with many other societies and institutions, it is suffering somewhat from the strain and anxiety of the South African war.

The Show was arranged into eight classes, and 185 sub-classes. Class 1, consisting of fifty-nine entries of plants in pots; Class 2 of Hyacinths and other bulbous plants; Class 3, cut flowers were confined to gardeners and amateurs. Classes 4 and 5 were for fruit and vegetables; class 6 was reserved for amateurs. Classes 7 and 8 were reserved for nurserymen; and while they generally do so much to help this show, the entries on this occasion were not so numerous as could have been wished.

Visitors to the Waverley Market turn instinctively to circular plant tables, 12 feet in diameter, of which there were two; and the Orchid-tables, 5 feet by 4, of which there were

three, admirably filled as usual. Azaleas, Rhododendrons, Orchids, vied with each other in brilliance and beauty. While superb groups of Maidenhair and other Ferns and fine foliage plants, Dracenas, Palms, toned down the blaze of Azaleas, Orchids, and other flowers.

The first real breath of genial spring and summer seems to have come to us amid the Hyacinths, Daffodils, Hepaticas, Cut Roses, in numbers of 24 and 12; with hardy Primroses. The Oyclamens, of which there were three lots of nine each, were superb, as were the *Deutsia gracilis*, *Guelldres* Roses, Lilacs, Spiras, and pots and pans of Lily of the Valley.

The best twenty-four Roses were shown by Mr. George Manson, gr. to H. GILLON, Esq., Wallhouse; and the 2nd prize was taken by Mr. Wm. Armstrong, gr. to Dr. Scott, Musselburgh.

Mr. George Manson, gr. to H. GILLON, Esq., Wallhouse, had the best exhibit of twelve Roses, and Mr. Wm. ARMSTRONG was 2nd.

The best *Maréchal Niel* Roses came from Mr. T. PEARSON, Beechwood, Murrayfield; and the best *Gloire de Dijon* Roses from Mr. GEORGE MANSON.

One peculiarity of the show was that while there were no fewer than thirteen entries of six pots of *Primula obconica*, there were but seven of six *Primula sinensis*, and four of *P. Sieboldi*.

Probably, owing to the lateness of the season, there was but one entry for Messrs. BARR & SONS' Cup for forty distinct varieties.

FRUIT.

There was nothing specially notable among fruit. Three lots of six pots of Strawberries were shown, and several exhibits of thirty Strawberries.

Considering that we are now in April, Apples were well shown, there being nine entries of culinary Apples in six varieties; there were also six entries of twenty-four dessert Apples in four varieties. There was one Pine-apple, not less than 4 lb. in weight; and two exhibits of two bunches of black Grapes.

Among the best twenty-four dessert Apples shown were *Blenheim Orange*, *Ribston Pippin*, *Dessein de Beauf*, *King of the Pippins*, *Fearn's Pippin*, *Blue Pearmain*, *Beaumann's Winter Keinette*.

Among the best twenty-four culinary Apples were *Dessein de Beauf*, *Wellington*, *Annie Elizabeth*, *Mère de Ménage*, *Bedfordshire Foundling*, *Striped Beefing*, *Gloria Mundi*, and *Hornead's Pearmain*.

GHEENT HORTICULTURAL MEETING.

At the meeting held on April 1, the following awards were made:—

CERTIFICATES OF MERIT.

For *Novelty and Variety*.—*Anthurium* President Kruger, from M.M. F. Vervaeke-Vervaeert et Cie.; *Anthurium Scherzerianum*, from M. Louis de Smet; *Anthurium Scherzerianum* seedling, from La Société Horticole Gantoise; *Odontoglossum* species, from M.M. Verdonck; *Odontoglossum* species, from M.M. Verdonck (par *acclamation*); *Cattleya Mendell* var. *Fairy Queen*, *Lycaste Skinneri* alba var. *Roseleana*, *Cattleya Schrodere*, *Lælia* x *Jula* (*L. cinnabarina* x *purpurata*), these four were exhibited by the Marquis Waverin; *Anthurium* hybrid from la Société Horticole Gantoise (*à l'unanimité*); *Cattleya Mendell*, from M. L. de Smet-Duvivier (*à l'unanimité*); *Odontoglossum Halli*, from M. L. de Smet-Duvivier; *Miltonia Bleueana*, *Odontoglossum Pescatorei* alba (*à l'unanimité*), *Cattleya Louis Chaton* (*à l'unanimité*), *Odontoglossum elegans*, *Cattleya Mendell* (*à l'unanimité*), from M. G. Vincke-Dujardin of Bruges; *Dendrobium nobile nobiliss* from M.M. Sander et Cie., Bruges (par *acclamation avec fluctuations du Jury*); *Anthurium Scherzerianum grandiflorum*, from M. Draps-Dom; *Cut Flowers* of *Odontoglossum*, from M. Vincke-Dujardin.

For *Cultivation and Bloom*.—*Acacia linearis*, from M. E. de Cock; *Acacia Sophora* (*à l'unanimité*); *Erica arborea* (par *acclamation*) *Acacia leprosa*, *Cytisus albus pendulus*, *Eleria Smithi*, from M. E. Bedinghaus; *Ansellia congoensis*, from M. Spae-Vandermeulen; *Vanda suavis*, from M. L. de Smet-Duvivier; *Trichopilia suavis*, from M.M. Sander et Cie.

For *Cultivation*.—*Nidularium aureum striatum*, from M. Cha. Gassel.

HONOURABLE MENTION.

For *Culture and Bloom*.—*Brachysema acuminata*, from M. E. de Cock; *Westringia longifolia*, from M. E. Bedinghaus; *Rhododendrum multiflorum*, from M. E. Maenhaut-Lucas; *Odontoglossum crispum*, from M. Van Wassenhove.

For *Variety*.—*Anthurium Madame Krüger*, from M.M. F. Vervaeke-Vervaeert et Cie.; *Cypripedium Souvenir de M. Prosper de Volder*, from la Société Anonyme Horticole, "La Lys," de Deynze; *Cattleya Mendell*, from M. L. de Smet-Duvivier; *Lycaste Skinneri*, from M. G. Vincke-Dujardin; *Odontoglossum triumphans*, from M. Draps-Dom.

MISCELLANEOUS SOCIETIES.

Devon and Exeter Gardeners'.—Instead of a lecture on one special subject, a practical demonstration in potting plants of different kinds was given at the last meeting of this body. Mr. H. Webber, of Messrs. Veitch's Nurseries, potted-up some Orchids, and giving an explanation of his subject. He disapproved the use of a rammer in potting soft-wooded plants in 5 or 6-inch pots. As a potting compost for Orchids, peat, sphagnum-moss, and charcoal, in small quantity, were sufficient, ample drainage by means of clean crocks being afforded.

Mr. W. R. Baker, gardener at Lady DUCKWORTH'S, Knights, succeeded, and after reading a short paper, potted up some *Chrysanthemums*. In this case, to show the special requirements of different plants, the rammer was freely used, Mr. Baker contending that hard potting was necessary for *Chrysanthemums* to prevent their shedding their foliage.

The next was Mr. Fletcher, gr. to Col. HALFORD THOMPSON, Teignmouth. He also read a paper—rather a lengthy one—which dealt chiefly with *Jaduo* fibre and its uses. Thereafter he proceeded to pot-up a number of *Crotons* and other plants in *Jaduo* compost, and demonstrated the advantages resulting from its use. This is the last of the series until autumn. A. H.

Chester Paxton.—The last meeting for the Winter Session was held in the Grosvenor Museum on Saturday, when Mr. R. G. WATERMAN, of Woolton, Liverpool, delivered a lecture on "Exhibition Roses." The lecturer is well known throughout Lancashire and Cheshire as a successful exhibitor of the "regal flower," and his remarks on this occasion were characterised by a thoroughly practical knowledge of his subject. Minute details of "the best varieties to grow," "soil and situation," "mulching," "staging for exhibition," as well as the treatment of pests which Roses are subject to, were given. Incidentally he said that the gratitude of all those who appreciated really good Roses was due to the Paula, Dicksons of Newtownards, Bennett, Piper, Cranston, Lord Penance, and others, who had done so much in the way of hybridising and raising new varieties. To the Very Rev. Dean Hole, Rev. H. D'Ombraim, Wm. Paul, and other writers on Roses, he said our thanks were no less due. In his closing remarks, Mr. Waterman said that much as his success had been with the hybrid perpetual varieties, he nevertheless pleaded for an extended cultivation of the old-fashioned garden Roses, as well as the new single-flowered varieties now so popular.

The Reading Gardeners'.—The fortnightly meeting was held on Monday, April 9, when Mr. E. Fry presided over a good attendance of members. The subject of the evening was "Vegetables, the Varieties I Grow, and why I Grow Them," by Mr. John House, The Gardens, Northlands, Winchester, one of the earliest members of the Reading Society. Mr. House in mentioning the various varieties he grew, said that he was greatly handicapped in his selection, as he had to contend with a soil of only 18 inches in depth, and therefore many sorts which many Reading gardeners could grow, would be utterly unsuitable for his district. There was a large and splendid exhibit of flowering bulbs by Mr. F. Lever, of The Gardens, Hillside. A remarkable freak was seen amongst the Tulips; one of the Tulip bulbs carried no fewer than nine blooms. Mr. Crechley, The Gardens, The Honeys, Twyford, staged a lovely specimen plant of a light-coloured "star" *Cineraria*.

Wargrave Gardeners'.—A fortnightly meeting was held on April 4. Mr. W. H. SCOTT read a paper on "Hardy Ornamental Foliage Plants." The exhibits included some *Violets* from Mr. FINCH, six plants of *Cineraria* from Mr. FULBROOK, and five pots of *Clivia miniata* with trusses of bloom from Mr. POPE.

ANSWERS TO CORRESPONDENTS.

CANKER ON APPLE TREES: D. Smith. The removal of cankered parts of branches need not necessarily be performed in the winter, but it may be undertaken during the summer months, the process of healing over commencing immediately, and not waiting, as in the former case, several months before the sap rises, and the bark begins to grow over the wounds. Canker is usually a symptom, the real cause lying either in injuries caused by frost, or in the roots having got into a water-logged, un-aerated, perfectly infertile subsoil, such as clay, clayey-loam, or loose, hungry sand and gravel. It would be advisable to dig down to the lowermost roots and ascertain the sort of soil at those depths at which the roots of the worst cankered trees are found. Lifting and replanting would do good, but when twelve acres have to be dealt with, it would be less expensive to plant in better soil in a new locality, and employ only Apples on Paradise stocks.

CUCUMBER PLANTS DYING: B. J. M. Not eel-worms at the root, but canker of the stem at the ground level. This malady may be brought about by deep planting, and excessive wetness of the soil round the collar. It may be remedied by shallow planting, and letting the soil slope away from the stem on every side for a distance of 1½ ft. If a plant be slightly affected, remove some of the soil around it, and apply powdered charcoal and lime in equal proportions, rubbing this mixture on the stem bark. The Melon is more liable to canker than the Cucumber. You would do well to root out the affected plants and start anew with healthy plants.

DAY: X. Y. Z. The civil day, the mean solar day, is measured in hours, in two series, from one to twelve, and begins at midnight. This is the day recognised by law courts. Your young gardener had not completed his day when he left off work at noon.

GRAPES DISEASED: T. W. The bunch sent has numerous berries affected with the "spot" fungus (*Glaesporium laticolor*), for which there is no known remedy. You should cut out every berry that shows the least appearance of the fungus, catching them in a bag or small box, and burning them forthwith. The bunches may then be dressed with sulphide of potassium, at the rate of half-an-ounce in a gallon of rain-water, the dressing being repeated twice or thrice before the fruit colours. Sometime after the last dressing the bunches must be syringed several times, to remove all trace of the sulphide, being careful to use water, leaving no deposit on the fruit.

NAMES OF FRUITS: C. P., Ireland. Cox's Orange Pippin.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—A. W. W. Birmingham. The flower is of *Miltonia flavesceus*, a pretty Brazilian species originally imported in 1832. It was also known as *Cyrtocentrum stellatum*. Your sketch rendered identification easy. It is, as you say, very delicately scented.—G. G. Cattleya intermedia.—E. T., Brighton. The flower sent does not seem to have matured properly. The long and broad front lobe of the lip indicates *Lælia anceps Schroderiana*, but unless the other parts of the flower develop better, it is *L. anceps Stella*.—G. B. L., Chislehurst. *Oncidium Cavendishianum*.—J. W. Allium neapolitanum.—A. W. It does not appear to have come to hand.—J. O. S. *Cypripedium Boxalli*.—R. N. H. *Oncidium O'Brienianum* of Reichenbach, f. An ally of *O. pubes*. The original came from Paraguay.—Enquirer. 1 and 2, good distinct forms of *Cymbidium Lowianum*; 3, *Lælia cinnabarina*; 4, *Odontoglossum triumphans*; 5, *Lonicera tatarica*; 6, *Euonymus radicans variegata*; 7, *E. radicans*.

PELAGONIUM CUTTINGS DISEASED: W. W. In the callus and roots of cuttings sent there is a fungus, but we are uncertain that it is the cause of death. The cuttings may have dried up or received a check, in which case the dead roots would easily fall a prey to fungi. Destroy dead plants and replant others into good clean soil, which has not before been used for pot-plants. See also an answer in this column, June 10, 1899.

PLANTS THAT WILL WITHSTAND THE FUMES OF LIGHTING GAS: H. J. S. Not many plants will do this for any length of time. The most resisting are *Aspidistra lurida*, and the variegated form of that plant; *Cyperus alternifolius*, *C. laxus*, and *C. distans*; *Phormium tenax*, *Aralia Sieboldi*, *Bambusa Fortunei variegata*, *B. aurea*, *Eulalia japonica*, *Myrtus* in variety, *Nerines*, *Valloia purpurea*, and *Richardia*, white and yellow spathed species, when in bloom. *Cannas* and *Clivias* for a certain length of time. Such annual and biennial plants as *Schizanthus pinnatus*, &c., *Humea elegans*, *Primula Sieboldi*, *P. sinensis*, and *P. involucrata*. German *Asters*, *Stocks* of all kinds, *Marigolds* in variety, and similar summer flowerers may be employed; as although very susceptible to injury from gas, they flower at a season when but little gas is being used in the dwelling. A great deal depends on the purity of the gas—much sulphur left in it owing to imperfect purification being very injurious to every species of plant exposed to the fumes for more than a day or two. The plants should be frequently taken out of the room, &c., and the leaves cleaned with rain-water, applied with a syringe.

PRIMULA OBCONICA: T. Curtis. The fact is well known to gardeners and many other persons, that the hairs of the leaves of *Primula obconica* are a cause of skin irritation with some persons who handle the plant, whereas others are entirely immune. It is not so well known that the mere presence in a greenhouse of a plant of this species sets up irritation of the skin in some peculiarly-constituted individuals.

SPIDERS ON STRAWBERRY BEDS: D. Smith. King's Lynn. We should not suspect the ground spiders, for such they are, however numerous, of causing the least injury to the plants, no British spider being a vegetarian in the matter of food. They may, however, rid you of myriads of insect foes of the aphid order. We are unable to advise you how to destroy them.

VIOLETS: W. W. The Violets sent were nice, clean, well-grown blooms, especially pleasing being the reddish-purple coloured *Amiral Avellon*. We are glad to find that the cultural hints we gave have been followed with such gratifying results.

COMMUNICATIONS RECEIVED.—J. O'B.—Attwood & Binsted, W. W.—G. B. M.—G. B. Jemman.—H. H. T.—G. Massee.—B. W.—E. C.—H. T. M.—M. Cogniaux—Count de K.—A. W.—A. L. next week.—J. C. You have been unfortunate but you have no cause for grievance against the Society. If you will refer to rule 11, you will see that if your case is considered worthy, assistance may now be given you.—C. W. H. G., next week.—W. R.—Justus Corderoy, next week.—G. S. B.—P. Seward.

(For Markets and Weather, see p. xiii.)



THE Gardeners' Chronicle

No. 695.—SATURDAY, APRIL 21, 1900.

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A CITY GARDEN.

THE old City of Canterbury gets much less attention from the average visitor than is proportionate to its deserts. The reason for this is, of course, that the attractions of the Cathedral are so exacting, that most tourists are compelled to devote the whole time at their disposal to that, and little else. If many days would be requisite for the complete investigation of the cathedral, as many more at the least would be required for the exploration of the other city relics, its unrivalled gateway, its walls, its Norman castle, its monastery (now a theological college), its churches, its hospitals, its almshouse, its streets. If it were only a continental town, how we should rave about it; what a harvest it would bring to Cook and Gaze. As it is, a goodly number of sight-seers do find their way, like Chaucer's pilgrims, with a difference, to one of the most interesting, if it be not historically, the most interesting city in Britain.

Those visitors who enter the city by the London, Chatham & Dover Railway, find themselves face to face with the pictorial remnants of the city wall, which here partly encircles the public park, of which we shall speak shortly. Quite as many, or perhaps more, alight at the South Eastern Railway, and passing under the

noble West Gate, find their way through the narrow streets to the cathedral, and there they find enough at least for one day. As a consequence, they miss the park, locally known as the "Dane John," and many of the numerous other attractions of the city, unless indeed they belong to the tribe that pride themselves on "doing" a place rather than on seeing it.

It is no part of our duty to play the part of guide, or even to indicate the points of interest. Our limitations constrain us, even as the old grey walls, with their bulwarks and towers, enclose the mounds and swards of the "Dane John" itself. It is this Dane John which gives us occasion to speak of the subject. The "Dane John" now-a-days is the public park of the city—ay, and it was so years before most towns were similarly embellished, and before such things as fresh air, beauty of scenery, and other hygienic necessities and artistic refinements, were as much thought of as now.

It is a long, narrow strip, enclosed on one side, as we have said, by the remains of the city wall and its mediæval towers. A central avenue of Limes (see fig. 77, p. 242) traverses the whole length of the park, with velvety sward on either side, and in the centre is a fountain encircled by Osmundas and other Ferns (see fig. 78, p. 243). Shrubberies and flower-beds are dotted here and there, and on one of the lawns stands the marble sundial, illustrated in fig. 79, p. 245. This graceful structure illustrates the four seasons following in their appointed sequence. It is the work of one of Canterbury's worthies, the late Henry Weekes, a native of the city, and a Royal Academician. It is one of the most elegant structures of the kind that we know of.

Elegance can hardly be assigned to the gigantic conical mound rising within the old walls. But though elegance cannot be claimed for it, we advise those who are not "scant of breath," to make the ascent for the sake of the delightful view of the city and its environs which may be had from its summit. A tasteless monument records the public spirit of one of the aldermen at the end of the last century, through whose munificence this park was secured to the citizens as a pleasure-ground. What is the real significance of the mound we must leave antiquaries to determine. At present they are not agreed as to whether it is of Roman, or Saxon, or Danish, or Norman origin.

The moat, or rather the site of the moat, on the southern side of the wall, is occupied for market garden purposes, for which it is obviously well adapted (see fig. 80, p. 249). Some day, some far-seeing citizens will convert this moat into a boulevard with trees and lawns, and thus add greatly to the amenities of the city. Whilst awaiting this consummation, the citizens have good reason to hold in grateful remembrances those who have endowed the city with so pleasant and interesting a pleasure-ground as the "Dane John."

The horticulturists, and specially the rosarians, will find their way to the Rose nurseries of Mr. Mount, in St. Dunstan's, on the western boundary of the city. Here they will find the explanation of the magnificent specimens of good cultivation which are exhibited at our Spring shows. Mr. Mount has several other establishments in and about the city, as well as at Herne Bay and Folkestone, but the special home of the Roses is in the St. Dunstan's Nurseries, before mentioned.

NEW OR NOTEWORTHY PLANTS.

POLYPODIUM HARRISII.*

THIS highly interesting species comes in between *Polypodium trifurcatum* and *Enterosora Campbellsii*, all three having a very close general resemblance and evident connection. In all the sori are more or less sunk, but extrude when mature. In this, and *P. trifurcatum*, they are in oval or round pits, while in *Enterosora* they are immersed in slit-like, linear apertures, and are much longer, but extrude eventually. In both this and *Enterosora*, the venation is connected, forming a series of two or three meshes on each side of the midrib, while in *P. trifurcatum* the branches are uniformly entirely free. The venation quite conforms to some of the states of *Phymatodes*, the costal series being narrow and unoccupied by either free branches or sori. Mr. Wm. Harris, F.L.S., the Superintendent of the Cinchona Plantations, the discoverer of it, whose name it bears, writes me that:—"It is almost as rare as *Enterosora*, and, like that plant, it grows on the high limbs of large forest trees, so that it is a difficult matter to detect it from the ground, and when detected it is an exceedingly difficult matter to get within reach of it." Possibly this exalted elevation on large trees, almost beyond reach of sight, may be the reason, more than their rareness of the late discovery of *Enterosora*, in Jamaica. G. S. Jenman, Demerara, March, 1900.

ORCHID NOTES AND GLEANINGS.

LÆLIA JONGHEANA.

THIS fine Orchid, happily no longer rare, is flowering in many collections, and proves to be worthy of the description and figure published in the *Gardeners' Chronicle*, 1872, p. 425, which, until quite recently, was the chief knowledge the British orchidist had of the plant. Flowers sent by Joseph Broome, Esq., Sunny Hill, Llandudno (gr., Mr. A. C. Atwell), are the best we have seen. They represent three distinct varieties. The largest, a twin-flowered inflorescence taken from a plant which had two such spikes, has flowers 6½ inches across, the petals being 1½ ins. wide; the sepals and petals are bright purplish-rose. The disc of the lip and the seven-raised keels are orange coloured, the lower half of the side lobes forming the tube being tinged with rose. The front lobe is white, with a rosy-lilac crimped margin. Another specimen is slightly smaller and darker in colour, the rose-purple margin of the lip being distinctly displayed, as in the *Gardeners' Chronicle* illustration. The third flower is a pretty, lighter-tinted one, with darker orange disc, and but a faint trace of rose on the margin of the lip. Mr. Broome had one inflorescence with three buds, but one of these failed; and he observes that he has counted traces of four flowers on one spike.

A very handsomely coloured *O. Halli* and a fine *O. luteo-purpureum* also were sent. The bright light and pure air of Llandudno are doubtless great aids to obtaining richly coloured flowers.

* *Polypodium Harrisii*, Jenman, n. sp.—Rootstock repent, fleshy, ½–1½ in. long, very densely clothed with pale fulvous, acuminate, linear-lanceolate, reticulated, wavy scales; stipites mostly clustered, wiry, freely clothed with rusty, spreading, fine hairs, 2–4 inches long; fronds ligulate, 5–10 inches long, ½–¾ in. wide, merely sinuate or uniformly shallowly lobate, the lobes broadly rounded, base and apex plain and tapering, the latter usually blunt; margins densely hairy, other parts glabrous and glossy; substance coriaceous and brittle; midrib and veins on both sides covered in the parenchyma; surfaces wrinkled and striated, more especially the upper; veins in groups, the lateral branches connected forming two to three series of meshes of varying shape and form, the outer short veinlets sometimes free. Sori oval or round, copious, in two series mostly, sometimes in part three, on each side, one to each mesh, on a shorter or longer spur arising from the middle of the arch, generally medial but occasionally terminal; sunk in pits, which are not raised on the upper side of the fronds. Near Mabess River, Jamaica, 3000 ft. alt.

"LINDENIA."

The plants figured in the current number are :—

CATTLEYA TRIANÆI, Lind., var. *MAJESTICA*, a noble variety, with white segments, broad petals; the expanded portion of the lip is purple, with conspicuous veins, whilst yellow, radiating stripes adorn the throat; t. DCLXXXIX.

VANDA AMESIANA, Rehb. f., originally described by Reichenbach in these pages, 1889, i., 233; it is a native of the Shan States, and has spikes of white stellate flowers, with broad violet-purple lips, each flower nearly 2 inches in longest diameter; t. DCXC.

REYNOSTYLIS RETUSA, Blume, better known as *Saccobulum Blumei*; the small flowers are in long, dense, compact spikes; the segments faintly spotted, and the lip violet-purple; t. DCXCI.

ODONTOGLOSSUM CRISPUM, Lindl., var. *PAPILLON*, L. Lind., a flat, pentagonal flower, with broad, pointed, undulate, pure white segments, spotted with chocolate-brown; the lip has a few yellow stripes at the base; t. DCXCH.

LELIO-CATTLEYA ELEGANS var. *BIENHEIMENSIS*, *MADONVALLIA TOVARENSIS*, Rehb. f., native of Venezuela. *MILTONIA REGNELLI*, Rehb. f., Brazil.

MILTONIA REGNELLI var. *CITRINA*, Cogn., perianth segments olive-yellow; painted in the collection of M. Peeters, of Brussels.

MILTONIA COGNIAUXIE, Fr. Peeters, supposed to be a natural hybrid between *M. Regnellii* and *M. spectabilis* var. *Moreliana*; introduced from Brazil by M. Peeters.

MARKET GARDENING.

THE CULTIVATION OF BEETROOT, &c.

FROM the end of the first week in April to the middle of the month is a good time to sow the seed of this valuable vegetable. Beet will grow in

cultivator once or twice during the summer months, which will have the effect of improving the growth of the crop, and keep down large weeds. An acre cropped in this manner will yield about 4,923 dozen roots, which at the moderate price of 9d. per dozen, would give a sum of £184 12s. 3d., this sum being in addition to that realised by the previous crops. Out of this sum a good balance would remain on the right side, after the expenses had been met of manuring, ploughing, harrowing, and rolling seed, and drilling-in of the same, pulling and marketing the crop, rent of land, wear and tear of implements, &c.

CABBAGE.

An acre of Cabbage of the Imperial or Heartwell type, planted this month in ground prepared



FIG. 77.—THE CENTRE AVENUE, "DANE JOHN," CANTERBURY. (SEE P. 241.)

"DICTIONNAIRE ICONOGRAPHIQUE DES ORCHIDÉES."

The plants figured in this useful little publication for March are the following :—

ERANTHUS GRANDIFLORUS, Ldl., a native of Madagascar, introduced in 1824.

CATTLEYA BOWRINGIANA, Veitch, introduced from British Honduras by Veitch.

CATTLEYA BOWRINGIANA-LABIATA, G. Mantin, a cross between the two species named. It remains to be seen how it differs from Messrs. Veitch's *C. Portia* ×, which had the same origin.

CYPRIPEDIUM CHAMBERLAINIANUM, O'Brien.

CYPRIPEDIUM AUREUM var. *ÆDIPÆ*, Cogn., a cross between *Spicerianum* ♀, with *C. nitens* var. *Sallieri*.

LELIA FERRINI, Ldl., Rio.

LELIA FERRINI, A., var. *IRRORATA*, flushed with rose.

LELIA FERRINI, B., var. *ALBA*, pure white.

LELIA LEUCOPTERA, Rolfe, a supposed natural hybrid between *L. furfuracea* and *L. alba*.

a satisfactory manner in ground of average depth, texture, and fertility. Lightish ground of fair depth, which has had a liberal dressing of rotten manure, free from rankness, ploughed in as soon as the previous crops of winter greens, Broccoli, Spinach, and such-like vegetables, are cleared off, will suit the requirements of the plant admirably. The land having been harrowed, and also rolled if lumpy, will be ready for drilling. The drills should be drawn at a distance of 12 to 15 inches apart, the drills being set so as to deposit the seed thinly, as in the case of Mangold Wurzel. The seedlings, when they have reached a height of 3 to 4 inches, should be chopped out into groups, finally leaving those which are to form the crop at 9 inches apart. The only attention necessary afterwards is to stir the soil with the hoe or a

as recommended for Beetroot, at 18 inches asunder, would, in round numbers, represent 1613 dozen heads fit for marketing a few months hence, and which at 9d. per dozen would give a sum of about £80 for the produce of 1 acre; or putting the price at 1s. per dozen heads, a sum of about £80 would be secured for the crop.

LETTUCE.

Seeds of the Paris Cos type and All-the-Year-Round Cabbage Lettuces, drilled in thinly this month, in ground prepared as indicated above, in rows 1 foot apart, the young surplus plants being afterwards hoed out, leaving the plants forming the crop at 1 foot from plant to plant in the row, will yield 43,560 well-developed heads a few months later, assuming the weather to be favourable to

growth. These should command a wholesale price of about 9d. per dozen, equal to £136 2s. 6d. for the produce of 1 acre. This amount, after all expenses incurred in production had been deducted, would leave a satisfactory balance in hand. The crop should be cleared off the ground in time to plant it with Autumn Giant Cauliflower, Autumn and Winter Broccoli, Winter Greens, and Prickly Spinach.

CUCUMBERS AND VEGETABLE-MARROWS.

The present is a good time to make sowings of Stockwood Ridge Cucumbers, and Moore's Cream Vegetable-Marrow. Light ground of good depth, into which a good dressing of short manure has been ploughed prior to sowing the seed, will suit the requirements of both kinds of plants in every respect. It will be advisable to drill in rows of strong-growing Broad Beans at intervals of 5 or 6

RADISHES.

Good Radishes always find a ready sale during summer and early autumn. The seed should be sown in narrow "land" or ridges, so as to enable the crop to be taken without trespassing upon the ground. The seed should be broadcasted upon the land of the description referred to above, and prepared in the manner I have set forth. As soon as the Radishes are large enough for consumption, they should be pulled up and bunched for market. *H. W. Ward, April 2.*

SOME SUSSEX FRUITS.

(Concluded from p. 156.)

IV.—THE TREE-STRAWBERRY.

THE Arbutus receives but scanty notice in most works on fruits and their culture. Mr. Leo H.

or Strawberry-tree, as it is frequently called in England and France, because of the resemblance of its fruits to a Strawberry, is one of those rare and delightful objects on which Nature, with a lavish profusion, showers at one time bud, blossom, and fruit." In this respect it resembles the Orange, and among the imaginative it has been adopted as the symbol of unchanging affection. The pretty tree blossoms profusely even in the north of England, and is a welcome addition to our flowering shrubs in Cumberland and elsewhere; but it needs the long summer and belated winter of Sussex to bring its fruit to perfection. Says the writer I have already quoted: "This beautiful symbol of inseparable love requires a whole twelve-month to perfect its fruit, so that in the autumn of the year, when other trees and flowers are shedding their withered leaves and petals on the ground, the lovely Arbutus may be seen with its rich red,



FIG. 78 —FOUNTAIN IN THE "DANE JOHN," CANTERBURY. (SEE P. 241.)

feet, sowing two rows of Cucumbers and Marrows respectively between the rows of Beans, which will serve as "wind-screens" to the Cucumber and Marrow-plants during the earlier stages of growth, a time when a slight protection from cold winds is beneficial to the young plants, and is therefore productive of good results in the way of forwarding growth, and securing earlier crops than would be otherwise obtainable. It will be understood that the Bean-stalks are to remain after the pods have been gathered. If rain should fall during the earlier stages of growth, and the temperature is that of an ordinary summer, profitable crops of Marrows and Cucumbers will be secured, both of which usually command a ready sale. The quantity of seed required to sow an acre of land is from 5 to 6 lb. avoirdupois.

Grindon dismisses it with the following remark:—"Would that the Arbutus were as good to the palate as to the eye. It is a Strawberry-tree, alas! only in name, though the crimson harvest is made available in Spain and Corsica for the manufacture, by distillation, of a simple wine." The fruit being regarded as of little value, Mr. Grindon places the tree or shrub among the ornaments of the garden merely. That it is a most welcome addition from the standpoint of ornament, no one will deny; but surely the Arbutus, as found in Sussex and other congenial localities, merits other recognition. I admit that I have found most pleasure from it in foreign lands, where its peculiar flavour is grateful to a palate that needs cleansing and reviving.

The name needs no explanation. "The Arbutus,

Strawberry-like fruit, clusters of waxen-hued blossoms, their Vine-coloured stems and green leaves resembling those of the Bay-tree; all flourishing in unstinted abundance, thus realising the poetic fiction of fruit and flowers growing together."

Botanically the Arbutus is a heather; the flowers resemble those of our waxen Heaths so closely that the most casual observer would mark the similarity. Its calyx is small and five-parted. The corolla, which is oftenest of a creamy hue, is also five-cleft and bell-shaped; there are ten stamens, the anthers of which have two pores at the tip, and the fruit or berry is many-seeded. The leaves are smooth, and have blunt serratures on the edges; the stem is arboreous, the plant is evergreen, and the blossoms appear in bunches or

panicles on the ends of the twigs or branches. Altogether the appearance is one of exceptional grace and beauty. Among its near relatives, which yield edible fruits we find the Cranberry, the Whortle or Bilberry, the Bearberry, and other well-known plants. A native of the South of Europe and the Levant; it is also found in a wild state near Killarney, where it forms groves of singular beauty. Probably this is another of those cases in which the flora and fauna of the south of Ireland is directly related to that of the Iberian peninsula. Mr. Smith, however, in his *History of the County of Kerry*, has ventured the conjecture that it may have been introduced by the monks of St. Finian, who are said to have founded an abbey there in the sixth century.

The Arbutus is known in Spain as Madrone, or Madroño, and Darwin tells us a curious story about it. Some years ago a Mr. Gisbert was employed as engineer on the roads in Spain. He was fond of rural sports and roaming, and was a careful observer of Nature. In the Sierra Morena the Strawberry-tree was very abundant, and bore large quantities of red fruit. These resembled fine large red Strawberries, and by their brightness gave quite a glow to the woods. Under these trees the hedgehogs were innumerable, and the fruit of the Arbutus was their favourite food. When they wanted to enjoy the delicacy at leisure, they would roll over and over on the ground where the fruit was lying in great abundance, and having impaled the berries with their spines, would trot off with them to their holes. It was a novel sight to witness the animals jogging homewards with a dozen or score of the Strawberries fixed on the bristles.

But the Spaniards do not leave them all to be devoured by the hedgehog. Both here and in Italy, Portugal, and other countries, the people eat them still; and in former times they appear to have been quite a common article of food. They may be purchased, along with other fruits, in the markets of Padua and other Italian cities. The fruit is threaded on a grass strand or straw, as Strawberries are by our children, and offered for sale in Constantinople and Smyrna. It was known to the early Latin writers, being celebrated by Horace in his *Odes*, as well as by his predecessor Virgil. Among other allusions to it in the *Æneid*, we find one which describes the bier of Pallas, the son of Evander, as being formed of Oakan twigs and Arbutus-rodæ (*Æneid* xi. 61; Dryden unfortunately omits it in his translation). Among the Romans, at the time when they made frequent use of flowers and plants in their sacred rites, it was employed at the festival held yearly in honour of Pales. This festival was celebrated on April 21, and Pales was a divinity of shepherds and their flocks. The poet Ovid mentions it (*Fast.* vi. 153); and we are told that the plant anciently bore a sacred character, being dedicated to Carda or Cardea, the sister of Apollo and the friend of Janus, the door-guardian. With a rod of Arbutus, Cardea cured infantile diseases, drove away sorcery, and prevented evil spirits from entering the door. Similarly the Chinese employ various plants to this day to keep away demons from the house; and the plant-lore of every land abounds with illustrations of a similar usage.

When we remember the statement of Ovid, to the effect that the Arbutus, "heavy with its ruby fruit," afforded food for man in the Golden Age, we smile at the attempts which have been made to explain the botanical name by which the plant has long been known. Some people, mistaking the language of Pliny, say he bestowed the name of Unedo upon it, because people who tasted it were never guilty of taking a second. The name, however, was in use before his day, and its meaning was already forgotten. Here are his words: "The flesh of the Strawberry differs entirely from that of the Arbutus fruit. This is the only instance in which we find a similar fruit growing alike upon a tree and on the ground. The tree is tufted and bushy. The fruit takes a year to ripen, new

blossoms appearing while the fruit of the previous season is arriving at maturity. The fruit is held in no esteem, in proof of which it has gained its name of Unedo (as if from unum edo—I eat one only), people being generally content with eating but one. It has also another name besides this, being further known as the Arbutus." Hence the modern botanical name, *Arbutus Unedo*, L. The first of these words has also exercised the ingenuity of the philologist. One affirms it is a compound of two Celtic terms, meaning "the tree which mimics a herb;" while another makes it a diminutive of the word Arbor, a tree. The Greeks called it Komaros, and even had an epithet derived from it, which they applied to certain people—the Arbute-eaters, like the Lotus-eaters.

It was long ago observed that the pretty, bell-shaped blossoms contain a delicious repast for butterflies and other insects, which may frequently be found late in the season regaling themselves on the boarded sweets. In the Isle of Andros a spirituous liquor is distilled from the fruit. It has been affirmed that when the Arbutus-tree is raised from English seed it is more hardy than when grown from seed produced in warmer climes. In the north of England it is usually a low, bushy shrub; in the south it will grow to the height of 10 or even 20 feet, while in the Levant it attains to a great size. In Africa it attains a height of 50 cubits, says one writer. Its dense, evergreen foliage renders it specially suited for affording refreshing shade in hot climates, and it would seem more than probable that the poet Horace had enjoyed the luxury of stretching his limbs under the shade of the Arbute-tree.

It is certain that the fruit is only to be found in perfection under sunny skies, where the tree can enjoy, even in the autumn and winter, the chemical action of the sun's heat, and these conditions are, in this country, only to be obtained in the south of England. The reason why the testimony of ancients and moderns alike is so conflicting respecting the Tree-Strawberry, is found first in the fact that many persons have been unable to obtain the fruit under favourable conditions; and, secondly, the flavour is too acid for many palates. In Ireland the people are said always to drink water after partaking of the fruit. I have partaken of it freely in warmer parts of the globe, and have found the acidity very refreshing. Dallaway states that the fruit resembles both in size and flavour a scarlet Strawberry as it is found in the vicinity of Miletus, while about Belgrade it grows among Myrtles and Roses in wild luxuriance.

Our own Evelyn, the author of more than one valuable work on trees and fruits, complained sadly in his day of the neglect which was shown to the Arbutus. He would have abundant cause for the same regret to-day. In the north it will not yield rich fruit, though its lovely blossoms may even there be produced at a season when other flowers are rare. But in the sunny south, with care and attention, not only may its pink and double varieties be cultivated for ornamental uses, but the fruit-bearing species may be brought to that state of perfection which will enable it to yield fruit of a beautiful and unique description. Its colour is fascinating, its taste unlike that of any other fruit, and the season of year at which it ripens adds another to its many charms. *By a Sussex Naturalist.*

KEW NOTES.

DASYLIRION QUADRANGULATUM.—Whilst nearly all of the fifty or so species of *Dasyllirion* have glaucous green leaves with serrated edges, there are a few of less forbidding aspect, and undoubtedly the most ornamental of these is that named as above by the late S. Watson in 1879.* An example of it has been a conspicuous object in the Succulent-house at Kew for at least twenty-three years under the name of *Agave striata* var. *recurva*. This plant was figured and

referred to by Mr. Baker in his monograph of the Genus *Agave*, published in the *Gardeners' Chronicle* in 1877, vol. xiii, p. 556. I saw a plant of it in flower in a garden at Hyères in 1889, where it was named *Xanthorrhoea hastilis*; it bore a spike 18 feet high, the upper half clothed with adpressed branches of brown trigonous seed-like flowers (female). *Xanthorrhoea* is confined to Australia, and has an inflorescence like a Balrush. I also saw a plant of it in the garden of the Casino at Monte Carlo, where it was named *D. juncifolium*, and Mr. Baker saw this plant two years later in flower at Monte Carlo under the same name. It was then "a great tuft of 200 to 300 recurving rigid linear leaves 3 to 6 feet long, not more than 1 inch broad at the middle, vertically striated, slightly glaucous, and convex on both faces, scabrous on the margin, not splitting up into threads at the top. The peduncle is 15 to 20 feet long." The Kew plant is now flowering for the first time; it has a stem 18 inches high, completely hidden by the persistent leaves, which form a grand radiating head of rush-like leaves 6 feet through. The spike is 10 feet high, the upper 3 feet clothed with pale green female flowers arranged on short, branched erect spikelets, each subtended by a long lanceolate papery-brown bract. It is unfortunate that no male *Dasyllirion* is in flower at the same time. A figure of the Kew plant has been prepared for the *Botanical Magazine*. This *Dasyllirion* is easily distinguished from *Agave* by the brittleness and spineless character of its leaves.

NEW ZEALAND VERONICAS.

A collection of these plants was placed in the outside recesses of the walls of the Temperate-house last spring, where they grew satisfactorily. It was thought that the shelter afforded by the walls and buttresses of the house would be sufficient to enable all the species to withstand the cold of winter without further protection. The cold winds and several severe frosts experienced in February (once the thermometer registered 18° of frost) were, however, fatal to some of them and injurious to others. The following lists may be useful as a guide to anyone desirous to grow these useful plants in the open air:—

SPECIES THAT WERE NOT INJURED BY COLD LAST WINTER:—

<i>V. buxifolia</i>	<i>V. Godefreyana</i>	<i>V. pingulifolia</i>
<i>V. carnosella</i>	<i>V. Kirkii</i>	<i>V. rakalensis</i>
<i>V. chathamica</i>	<i>V. Lowii</i>	<i>V. Stuarti</i>
<i>V. cupressoides</i>	<i>V. linifolia</i>	<i>V. Traversii</i>
<i>V. decumbens</i>	<i>V. lignatrifolia</i>	<i>V. vernicosa</i>
<i>V. epacridea</i>	<i>V. levis</i>	<i>V. tobarcorrensis</i>
<i>V. glauco-cerulæa</i>		

SPECIES THAT WERE INJURED BUT MAY RECOVER:—

<i>V. Cookiana</i>	<i>V. salicifolia</i>	<i>V. parviflora</i>
<i>V. decussata</i>	<i>V. speciosa</i> "mer- villæ"	<i>V. elliptica</i>
<i>V. newryensis</i>		

SPECIES THAT WERE KILLED OUTRIGHT:—

<i>V. anomala</i>	<i>V. ignota</i>	<i>V. salicifolia</i> var.
<i>V. azurea</i>	<i>V. Lindleyana</i>	<i>myrtifolia</i>
<i>V. carnea</i>	<i>V. macrocarpa</i> alba	<i>V. speciosa</i> , all the forms except
<i>V. diosmefolia</i>	<i>V. pimelioides</i>	<i>merveille</i> .
<i>V. Girdwoodiana</i>		

ORCHIDS.

The following interesting plants are now in flower in the Orchid-houses at Kew:—*Eulophiella Elisabethæ*, a strong specimen with seven spikes, all spreading out horizontally from the base of the pseudo-bulb. Thus grown, this is one of the most decorative of tropical Orchids, the white flowers tinged with rose springing from a deep crimson scape being most effective. *Cyrtopodium punctatum*, with a large branched raceme of yellow and brown flowers, the large bracts coloured like the flowers being equally attractive with them. *Coryanthes maculata*, one of the "bucket Orchids" bearing two spikes of flowers. *Maxillaria sanguinea*, a pretty little cool-house species with small round pseudo-bulbs on a creeping rhizome, linear, arching deep green leaves, and erect solitary flowers, in which the bright crimson lip is the most attractive organ, the other parts being green. *Cryptostylis arachnites*, a terrestrial herb related to *Pogonia*, with a fleshy rootstock, erect, lanceolate green leaves, and scapes a foot high bearing numerous

* *Proceedings American Acad. Arts and Sciences*, vol. xiv.

spider-like flowers; the green segments being linear and spreading and the lip fleshy, purple and mottled. Probably this is the first time this Orchid has been seen in cultivation; it is a native of Khasia, Perak, &c. *Ansellia humilis*, introduced in quantity from West Africa last year, and supposed then to be *A. africana*. It differs from this species mainly in the paler shade of the brown blotches on the flowers; the pseudo-bulbs are from 18 to 24 inches high. It was first introduced in 1891 by Mr. W. Bull, in whose catalogue for that year the pseudo-bulbs are said to be only 6 to 9 inches long. *Eulophia Saundersiana*, from the same region as the *Ansellia*, has tall scapes nearly a yard high, bearing numerous flowers an inch wide, green, the

The *Odontoglossums* are the Baron's favourites, and it is gratifying to observe that not only have the fine and valuable varieties, obtained in some cases many years ago, been maintained in increasing vigour, but that most of them have been increased by division. Examples in this direction were noted in the purple-blotched *Odontoglossum Pescatorei* Veitchianum and *O. P. Schroderianum*, two fine examples of the latter being in flower at the time of our visit. Another noteworthy example in flower was a canary-coloured *Odontoglossum*, which has been in the collection for eighteen years; its flowers are similar in form to those of *O. crispum*, and they are very bright and attractive. Many of the fine varieties for which "The Dell"

much alike, are able to note distinct peculiarities in each. A remarkable example noted by Mr. H. Ballantine and his foreman, Mr. Clark, is that *Odontoglossum crispum* "Princess Christian" frequently continues a young growth into an inflorescence, bearing the spike on the top of a small imperfect pseudo-bulb, a characteristic not shown by any other variety in the collection.

A visit to the cool houses revealed to us fine flowering specimens of *Oncidium Loxense*, a species having an orange-coloured lip; *O. superbiens*, *Odontoglossum Cervantesii*, and its rose-coloured variety *O. Rosii majus*; *Sophrontis grandiflora*, *Ada aurantiaca*, *Odontoglossum (Erstedii) majus*, with some thirty flowers on a plant; varieties of *Masdevallia Harryana*, *M. Veitchii*, *M. x Chelsoni*, *M. caudata*, and its variety *xanthocorys*; the purple-flowered *M. Armini*, *M. triangularis*, forms of *M. Chimera*, and other species.

The display in the large *Cattleya*-house consisted chiefly of numerous plants of the delicately-tinted fragrant *Cattleya Schroderae* in variety; several of *C. Lawrenceana*, including its variety *Vinckeana*, which is the nearest approach to a blue-flowered *Cattleya* yet obtained; the pure white *C. Mendeli Bluntii*, and others of the *C. labiata* section. Of the hybrids, *Lælio-Cattleya x Veitchiana* (*L. crispata x C. labiata*), and one or two of the *L.-C. x eximia* class, were in bloom. Most of the other fine hybrids in this house, including the handsome *L.-C. x Digbyano-Mossiae*, being in sheath.

In the range of lean-to houses of intermediate temperature, a number of *Cypripedium* were noted in flower, the form of *C. villosum*, and especially the yellow section known as *aureum*, being very fine. Also in bloom was a number of varieties of *C. Boxalli*, *C. hirsutissimum*, *C. insignis Sanderianum*, *C. x Lathamianum*, *C. x Deedmanianum*, *C. x Morganiae*, part of the original plant; *C. Stonei platysanum*, a splendid *C. Lawrenceanum* *Hycanum*, *C. x selligerum majus*, *C. x euryandum*, *C. Dayanum*, *C. Mastersianum*, *C. x cœnanthum superbum*, *C. x Harrisianum superbum*, and others. One of the divisions of this range contained *Selenipediums* in flower, viz., *S. Schlimi albiflorum*, *S. x Schroderae*, and others of the *S. x Sedeni* class.

In one of the houses, the handsome *Lælia Jongheana* made a good display with its large bright, rose-orange centred flowers. For many years a plant of the original form has been kept in The Dell collection, and previously to the recent importation it was perhaps the only plant in cultivation. Years ago it was used at "The Dell" for crossing with *Cattleya Trianaei*, and several of the resultant progeny of the cross, viz., *L.-C. x Baroness Schroderae* are now in flower. One fine group of *Dendrobiums*, consisting of *D. x Aspasia*, *D. x Cybele*, *D. x eucœnum leucopterum*, *D. x splendidissimum grandiflorum* in several distinct varieties, and other hybrids, were making a good show; as well also as a fine lot of varieties of *D. nobile*, of which, however, the greater number had passed out of flower; *D. Wardianum*, of which the showiest is *D. Wardianum*, *Schroderae* variety; several *D. W. album* and *D. crassinode album*, *D. Falconeri giganteum*, a lot of *D. thyriflorum*, *D. Farmeri*, *D. Schroderianum*, *D. Hildebrandi*, &c.

In the warm *Dendrobium*-house we remarked a good display of *D. superbum* of a deep rose tint, as did also the pure white variety *D. s. Dearei*, and the slightly-tinted *D. s. Barkei* and *Huttoni*; the blue *D. Victoria Regina*, the fringed *D. Harveyanum*, some good *D. atro-violeaceum*, and some species from New Guinea.

In the *Nepenthes*-house we noted a plant of *Eulophiella Elisabethae* in flower, and two specimens of *E. Peetersiana* making sturdy growth. In this house the capricious *Dendrobium Lowianum* grows with great vigour, and the no less difficult *D. McCarthyi* in equally satisfactory manner. *Cœlogyne cristata* and *C. c. alba* formed a profuse display; the plants in two of the houses being of great size with numerous flowers. Specimens of



FIG. 79.—THE SUNDIAL, "DANE JOHN," CANTERBURY. (SEE P. 241.)

petals and lip lined with black, and the centre of the sepals black. *Lælia Jongheana*, *Lælia Cowani*, *Lælia Schilleriana*, and *Cynorchis compacta*, the last-named a delightful little plant about 3 inches high with a tuft of green leaves and erect spikes of small pure white flowers. *W. W.*

ORCHIDS AT "THE DELL," STAINES.

BARON SIR H. SCHRODER'S Orchids having the advantages of the best devised sort of houses, and the skill only to be acquired by many years of experience in their cultivation, always have a healthy and vigorous appearance; and their flowers have a brightness not to be found in districts less favoured by sunshine.

collection is celebrated, are showing strong flower-spikes; and among those found in bloom were *O. Pescatorei melanocentrum*, with singular-looking lip with purple markings; *O. P.*, yellow variety, or, as some say, unspotted *O. x excellens*; *O. Schillerianum*, still a rare plant, and very pretty; *O. liliflorum*, which is said to be very remarkable, its branched spike of rosy-lilac flowers being intermediate between those of *O. ramosissimum* and *O. Edwardi*, both of which were likewise finely in flower; *O. x elegans* Eastwood Park variety, much larger than the original; *O. crispum lilacinum*, and some other varieties; a good *O. x Coradinei*, and very showy forms of the *O. Ruckerianum* section. Those who have the care of these rare varieties of *Odontoglossum*, which in their growth seem to the casual observer to be so

Cymbidium Devonianum were well furnished with flower-spikes, and *C. eburneum*, *C. Lowianum*, and *C. × eburneo-Lowianum*, were in bloom.

In the house containing the collection of *Miltonia vexillaria* varieties, several good *M. Warscewiczii*, three fine specimens of *Platyclinis glumacea* covered with their graceful white sprays of fragrant flowers; a fine specimen of the yellow and purple *Maxillaria Kimballiana*, *Colax jugosus*, *Epidendrum atropurpureum*, and a few others were noticed in flower.

In other houses some good spikes of "The Dell" hybrid *Calanthes* of the *C. × Baron Schroder* class, the showiest yet raised; a number of *C. Regneri*, *Lycaste Skinneri* Imperator, a stately, finely-coloured variety; and the pure white *L. S. alba*.

BOOK NOTICE.

THE BOOK OF GARDENING: a handbook of Horticulture, by [various writers], edited by W. D. Drury; very fully illustrated. (Upcott Gill, 170, Strand; 8vo, pp. 1189.)

A BIG book is not necessarily a great evil. There are exceptions, and this is one. "Every phase of Horticulture is [we are told] treated of from Landscape Gardening and Orchid Culture to Plant Propagation and Aquatic Plants," and as a general statement exclusive of a few details this statement gives a good idea of the contents of the volume. The substance of the book is divided into chapters dealing with landscape gardening, florist's flowers, Roses, *Chrysanthemums*, bulbous plants, aquatic plants, forcing, fruit-growing, vegetable culture, and many others that we need not enumerate, contenting ourselves by saying that they cover a large part of the art of horticulture as practised by the all-round gardener. Garden operations such as trenching, cross-breeding, hybridisation, &c., are not separately treated of, but are alluded to casually as circumstances arise. We miss also any special heading for garden tools, but we must own to a conviction that the descriptions of water-pots, hoes, and rakes usually given, is so much waste matter. A chapter on the general principles underlying the construction and the use of garden-tools and machinery would be of more service. Criticism of such a book is like criticising an encyclopædia. It can only be done by frequent reference. We can only pretend to have consulted the volume here and there with a view to make ourselves generally acquainted with its contents. The results of our survey have been very satisfactory, the different subjects, hackneyed though they be to the professional gardener, are treated with freshness and accuracy. Moreover, the editor has managed to secure the services of several new writers, which in these days where one meets the same writers in all the papers is refreshing. The illustrations are numerous and good, that between pp. 140-141 is as good as the rest, but it affords a good illustration of how not to exhibit *Chrysanthemums*. It may be a convenient way of judging the flowers, but the improving taste of the day will not much longer suffer such perversely inappropriate arrangements for *Chrysanthemums*, Roses, or, indeed any other flower. There is no sort of uniformity as regards scale in the illustrations; for instance, the representation of *Narcissus Madame de Graaf*, on p. 343, is not only much smaller than natural, but, on the other hand, it is much bigger than the representation on p. 349 of *Soilla peruviana*! This latter species, by the way, is a Mediterranean species having nothing to do with Peru, a mistake for which the editors are in no way whatever responsible. The representation of the *Dovaston Yew*, on p. 479, seems more like an *Abies* than a *Yew*. The nomenclature is much more correct than is usual in books of this class, and an effort seems to have been made by the editor and his staff to keep up to date in this important matter. An appendix and a copious index complete a volume which should form a component part of every garden library.

THE WEEK'S WORK.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener to F. A. BEVAN, Esq., Trent Park, New Barnet.

Apricots.—The fruits on trees which have set heavily may now be partially thinned, the best-placed ones being reserved, and those that have set in clusters of several reduced to one per cluster. Two to three fruits are enough to be left on any one shoot or spur. Many gardeners cannot resist the temptation to overcrop their Apricot-trees, the probable and usual result of which is a crop of inferior fruit. The Apricot may be cropped rather more heavily than the Peach, and a safe limit is to allow one fruit on a space of 9 inches square of wall, and the small fruited *Musch-Musch* a little closer. Another matter which it is worth while to mention in regard to the setting of the fruits is that these are produced most abundantly, and swell off more quickly on young shoots that are laid-in close to the wall than on spurs standing at some little space from the wall. This fact must be borne in mind by the person entrusted with the thinning, although it might seem that the larger-sized fruits are taking the lead, and the others will not develop, the latter, in spite of their appearing so backward, will subsequently catch up the others.

Disbudding Apricots.—If the trees are grown on much the same lines as the Peach, an amount of young wood will be laid annually; and to do this properly, disbudding must be resorted to, and spread over a period of two to three weeks. At the first operation the forerights and badly-placed shoots should be taken, and a few days later the number of those left should be reduced, gradually working from the point of each shoot towards its base; and at this point one, or at the most two young shoots should be reserved for training-in, the number of these shoots depending on the available space for training them. Where Apricot-trees are fruited mostly on existing spurs, or a combination of shoots and spurs, a fair number of young growths should be left, these being pinched at the third leaf so as to cause the formation of fruiting spurs. During the work of disbudding, a close examination of the leaves should be made for the "maggot," which in forming its nest gives a rolled-up and twisted appearance to the leaves. Insecticides at this period are of little use against this marauder, and the maggots should be crushed by finger and thumb.

Borders.—These will not be lacking in moisture after the wet winter experienced almost everywhere, yet it may happen where a wall has a wide coping, that the soil at the foot of the wall is dryish. A soil-tester will show if this be so or not. This tester is a useful implement, which should be found in every garden. If water be needed, sufficient should be afforded as to thoroughly moisten that part of the border.

Spraying Apple-trees.—Where this is carried out systematically it is usual to spray before the trees come into bloom, and again when the fruits have set. As the flower-buds will shortly expand, preparation for spraying should be made. A good and cheap remedy is the Paris Green mixture, but many object to its use on the score of its poisonous nature; still, if it be used carefully, it is quite safe in orchards and gardens, provided pot-herbs and vegetables are not grown under or close to the trees. If this be not the case, Bentley's Specific, mentioned by me in a previous Calendar, is safer, applied according to the directions accompanying the remedy. Paris Green is mixed and used at the rate of 2 ozs. to 20 gallons of water, and many cultivators now add a little soft soap, which assists in keeping the powder in suspension. In addition to this, the liquid should be frequently agitated so as to prevent the Paris Green settling at the bottom of the vessel.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen, S.W.

Mossing *Phalenopsis*, &c.—In the cultivation of these plants, efforts are too often made by the gardener to keep the sphagnum-moss fresh and green during winter, and injury to the health of the plants is thus caused. Failure to cultivate *Phalenopsis* successfully may also be due to subjecting the plants to a hot and over humid atmosphere, in conjunction with too great a degree of shade. Such conditions result in the production

of excessively green and fleshy leaves that do not mature perfectly, and are thus unable to withstand the changeable and gloomy weather of winter. The sphagnum-moss will continue in good condition far into the winter without affording more water than the plants require, and it is our custom never to replace the old by new until the end of the present month, when the plants are making new roots, and may be afforded water more liberally. The old sphagnum-moss can be more readily taken from between the roots if no water be afforded the plants for a few days previous to the operation. If it cannot be removed by other means, the syringe should be employed.

Replacing old receptacles with new.—The tenacious character of the roots of *Phalenopsis*, renders it a very difficult operation to replace an old basket with a new one, and it is very undesirable to insert the old one bodily into a new receptacle. The simplest and best plan is to immerse the plant and basket in the water-tank for an hour or more, when it will be found that by first taking out the corner pins, and then using a thin bladed knife to ease the roots from the bars, very little injury need be caused. Next take a new basket, remove one or more of the bottom cross-bars, hold the tips of the leaves of the plant together, and draw it upward through the basket to the required level, replace the bars, and insert crocks and sphagnum-moss amongst the roots, and surface with sphagnum-moss alone. In no instance with us has failure followed this practice, and some plants have been treated thus three times during the last ten years. We are now using pot-shaped, teak-wood baskets, the vertical bars of which afford more perfect drainage than baskets with horizontal bars. In substituting this kind of basket, it is an easy matter to unfasten the circular wires, enclose some of the roots, and make good again, and the crocks in this case can be arranged more vertically than in shallow baskets. The sphagnum-moss should be thinly and loosely laid among and on the crocks, but frequent waterings will then be necessary, as it will pass away rapidly. For some time after the operation, the ordinary method of watering by immersion should be discontinued, and a slight sprinkling given from a fine rose-can sufficing to keep the sphagnum-moss fresh. On bright mornings, a gentle spraying of the roots, baskets, and undersides of the leaves is desirable. *Phalenopsis* should always be suspended, and at a distance of not more than 15 inches from the roof-glass. The night temperature should be 65°, and by day 70°, allowing a gradual rise during the day from solar heat, but at the same time admitting a little air through the bottom ventilators. Shade the plants at all times from direct sunshine, but the oblique rays of early morning and evening will do no harm.

Syringing Orchids.—The beneficial effect of syringing over and amongst Orchids is being more and more recognised, and justly. A word of warning, however, is needed, or the practice may be abused. Before overhead syringing is done, it is imperative to take consideration of the weather, and if rapid evaporation is likely to follow the operation, its performance should be delayed until conditions have changed. When using the syringe, it is advisable to project the spray in an upward direction, so that there may be less likelihood of filling the developing leaves and growths with water, but the under surface of the leaves and exposed roots will be moistened and refreshed. Always attend to the watering of the plants before commencing to spray, it being impossible to obtain a correct idea of the state of the material for some time afterwards. Never spray late in the afternoon if it is possible, or the moisture may remain on the leaves all night.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain HOLBORN, Westonbirt, Tetbury, Gloucestershire.

The Vegetable-Marrow.—For supplying plants for the chief crop, seed may be sown forthwith. Let small 48's be partly filled with some light kind of mould, and place two seeds in each, lightly covering them; plunge the pots in gentle bottom heat, and as soon as the seedlings have formed three leaves, fill the pots with soil, remove to a cold frame, placing them near the glass. Vegetable-Marrows plants, grown on steadily in this manner, will be ready for planting out-of-doors by the end of next month. Good varieties are Pen-y-bryd and Custard for early bearing, and Moore's Vegetable Cream for a later supply; and for exhibition, the Long White and Green are desirable varieties.

Carrots.—The principal sowing should be made this month, on a plot of ground well manured, and deeply dug for some previous crop. In gardens of small area, where such a plot of ground cannot be found for the Carrot-crop, or the soil is shallow, Short Horn or stump-rooted Carrots are the best varieties to be sown. In deep soils the Intermediate or the Long Red Surrey are the more productive croppers. The land should first be raked to a fine tilth, having dressed it with wood-ashes and soot. Having done this, let drills be drawn at about 15 inches apart for large-growing Carrots; 10 to 12 inches for Short Horn, Carentan, and other small-rooted varieties; and the depth of the seed-drills for all varieties should be not greater than 1½ inches. In heavy or tenacious soil, good roots are obtained by making deep holes 8 inches apart with a dibber, and filling them with fine rich soil, afterwards sprinkling a few seeds on the top of each. In order to obtain a uniform brake of Carrots, seed should be mixed and rubbed with an equal quantity of damp sand or light earth. Another sowing of Short Horn varieties may now be made.

Lettuce.—Young plants may be planted in the open, and seeds sown in a warm border in drills drawn at a distance of 18 inches apart. Guano or nitrate of soda may be strewn between the rows of established plants, and water freely applied in order to produce a quick growth.

Scorzonera and Salsafy.—These culinary roots if properly cultivated are very acceptable additions to winter vegetables, and for the main crops seed may be sown from the present time till the end of the month, the cultural directions that are given for Carrots being suited to their needs. Failures to grow good roots of either are usually due to sowing the seed earlier than the time given above. It is prudent to make another sowing about May 15.

Chinese Artichokes (*Stachys tuberifera*).—This new kind of vegetable may be used as an occasional substitute for the Potato or as a white soup. The plant thrives on a plot of ground having a western aspect, and in any kind of light soil not recently manured, which was trenched in the winter and dug over subsequently. The tubers may be planted in rows 15 inches apart, 8 inches from tuber to tuber. A mulch of leaf-mould may be afforded in order to prevent the land becoming too dry.

Onions.—Seedlings raised under glass for the production of very large bulbs may be planted out of doors in showery weather, taking great care in lifting them not to break the roots. The rows may be 15 inches, and the plants 6 inches apart in the rows. Plant with a small dibber, letting the roots fall straight down into the holes, and squeeze the soil firmly about them with the dibber on one side only. An occasional sprinkling of water should be afforded till they are established, the ground being then trodden firmly between and around the plants, the plot being frequently hoed till the plants cover the ground.

Parsley.—The principal sowing of this herb may be made until the early part of next month, and if broadcasting the seed be adopted, a greater number of plants can be grown than by drilling. The soil should be given a good tilth, and the seeds covered with finely sifted soil.

Seeds.—Continue to sow seeds of Radishes, Lettuce, and small salad plants at fortnightly intervals.

THE FLOWER GARDEN.

By J. BARNOW, Gardener to the Earl of Ilchester, Abbotbury Castle, Dorset.

General Operations.—The pruning of all evergreen bushes that may require attention in this respect, should be finished for the season, and the edges of grass verges made straight and vertical so that the hedging-shears may be effectively used. In doing this, care must be taken to preserve the proper width of the walks. All walks which need new gravel or rolling smooth, should receive attention while there is yet sufficient moisture in the materials of which they consist to solidify the whole. Such operations as these should claim the attention of the gardener previous to beginning the mowing of lawns and the planting of flower-beds.

Clipping and Planting of Box-edgings.—These edgings may now be clipped with the hedging-shears, a clean cut with sharp shears soon healing. When the work is finished, the clippings should be raked or swept up and burned, and some soot and coarse sharp sand strewn alongside the edgings, in

order to drive out snails and slugs that may have harboured, and which cause much loss among tender bedding plants. See that blank spaces in the lines are made good with fresh plants from the reserve garden, putting in some fresh mould when planting, and spreading out the roots at the proper depth, making the soil quite firm about them. Afford plenty of water to the new plants in dry weather.

Bedding-plant Shelters.—Warm borders should now be selected for pricking off and standing out half-hardy plants from glasshouses and frames, so as to afford space in the houses, and harden off the forwardest bedding plants. Those required to be grown on should have the borders neatly dug, after affording a dressing of very rotten manure or leaf-soil and sand. Make the ground fairly firm when dry, and give it a good tilth previous to pricking out the plants. Afford the plants water, if necessary, on sunny mornings, and not in the afternoon. Temporary shelters should now be fitted up for bedding plants that will be placed outside, affording a level surface of sifted coal-ashes upon which to stand the pots. The coverings for these shelters may consist of tiffany, Frigi-dome, or other warm material, provision being made for keeping these in their places. The coverings must be removed every day as soon as the air gets warm. The temporary frame should not be higher generally than 2 feet.

Calceolarias may now be transplanted outside, and with the treatment advised above, they will make better progress than if drawn up and weakened in frames.

PLANTS UNDER GLASS.

By T. EDWARDS, Foreman, Royal Plant Gardens, Frogmore.

Pelargoniums.—Ivy-leaved varieties intended for flowering in pots should now receive their final shift, and if for ordinary decorative purposes 5-in. pots will be found a convenient size. The potting compost should consist of three-quarters good loam and one-quarter rotten stable manure. Let a neat stake be placed to each plant, and pinch out the points of the stronger shoots in order to obtain well furnished bushy plants. Place in a light position close to the glass in a house having a night temperature not higher than 55°; ventilate freely, and when the plants have become well furnished with roots afford weak manure-water three or four times a week, and occasionally syringe the leaves of the plants.

Hardwood Plants.—Any plants of Acacia, Boronia, Chorizema, Epacris, Erica, Correa, Polygala, Monochæstum, and similar hard-wooded plants, whose shoots have been shortened back after flowering, which may have started to grow, should, if necessary, be shifted into pots that allow for about 1 inch of new compost all round the ball. The surface of the ball should be kept level with the added compost, which should consist of good turfy-peat broken up by hand, and mixed with about one-sixth of sharp silver-sand. Let the potting be performed very firmly, using a rammer, and apply water sparingly until the roots have taken hold. Sufficient space should be left above the ball to hold a sufficiently large quantity of water to thoroughly wet the soil. If any doubt exists as to the condition of the soil in a pot, let the plant be stood in a vessel of water for an hour or two. The plants require no heat at this time of the year; and a house facing north will suit them, if the ventilation be ample. The plants should not be exposed for some time to bright sunshine, and should be syringed morning and afternoon.

Camellias Planted Out.—Those that may require pruning in moderation should be operated upon directly growth has begun. Liquid manure from the farmyard suits the Camellia better, and is safer in unexperienced hands than artificial manures, and may be applied about once a fortnight during the season of growth. Let the plants be thoroughly syringed daily. If black-fly appears on the young shoots, dip them in a vessel filled with weak tobacco-water.

Ventilation.—At this season, constant care must be exercised in affording air to plant-houses; the continual fluctuations of the outside temperature and the cold winds that frequently blow rendering this very necessary. In giving air, the ventilators should be opened on the leeward side whenever possible, so as to avoid having cold draughts passing over the plants. If the side ventilators are in the vicinity of the hot-water pipes, they should be

used at this season in preference to those at the apex of the house.

FRUITS UNDER GLASS.

By J. ROZKARS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Peaches and Nectarines.—Those gardeners who are fortunate enough to have established trees in their forcing-houses of the earliest varieties of Peaches and Nectarines, such as Amsden June and Waterloo Peaches, and Cardinal and Early Rivers Nectarines, have a great advantage over those who rely on older and later varieties for the first crops of fruit. Those earlier fruits have at this date almost reached their full size, and all of them should be as fully exposed to sunlight as possible by the aid of lath supports and other means. As large size, flavour, and finish are the chief aims of the cultivator, more liberal ventilation and less humidity in the air will be required. On sunny, warm days, the house may be left open until late in the afternoon, and a small amount of air admitted during the night. Every leaf should be kept clean and green, and free from red-spider. Every trace of this pest must be got rid of by repeated syringings before the final stage of ripening is reached. Aphides should be destroyed by fumigation, and the trees syringed with water, in order to remove all traces of the vapour from the fruits. It is very important to afford manures at this stage that act quickly, and for this purpose nothing excels sulphate of ammonia, but it must be used sparingly: 1 oz. to 1 gallon of water being a safe strength at which to use it. Let a sunny day be chosen for affording water, a commencement being made in the early morning; the ventilators at the top and bottom of the house being set open, those at the top not being quite closed at night, as there is a danger of the evaporating ammonia being strong enough to injure the foliage.

Figs.—The early Fig-trees having passed the fertilisation stage, the fruit will rapidly increase in size, and much care on the part of the gardener will be necessary in regulating and maintaining the atmospheric conditions of the house. During dull weather the syringing of the trees may be omitted, except in the morning. The fruit of the Fig generally suffers first from attacks of red-spider. When red-spider is noticed, the fruits should be wiped with a sponge dipped in a weak mixture of soap and water, and afterwards syringed with clear water. Where the borders or pots are, well-mulched copious applications of liquid-manure help to give size to the fruits. During sunny weather let a temperature of 75° to 80° be kept up, and air afforded freely whenever the day is favourable.

Succession Fig-houses.—The trees in these houses will require stopping and tying, and vigorous root-activity kept up by means of top-dressings, and the application of weak liquid-manure. The trees in the latest Fig-house will require some amount of gentle artificial heat this late season, otherwise the second crop of Figs may come too late to be of any service. Young stock should be re-potted as the plants increase in size, and the roots fill the pots. The best kind of soil for the Fig is rich turfy loam, to which a large quantity of mortar-rubble and grit is added. Let the shoots be frequently stopped, in order to secure bushiness, and plenty of heat and moisture be afforded, and full exposure to the sun.

Cherries.—These fruits being now stoned may be thinned where too much crowded, using a pair of Grape-scissors in doing this. A moderate temperature should be maintained till the fruit is ripe. As soon as the fruit commences to colour, apply sulphate of ammonia and water in the proportions advised above for Peaches. Subsequently the border should be coated thinly with spent manure so as to avert injury by the free ammonia. Weevils, being destructive at this stage, should be caught at night. These are found mostly in the curled-up leaves, which they attach to the side of a fruit, and thus destroy both leaf and fruit. Vaporise with XL-All for black aphid, and repeat the dose if necessary, and afterwards syringe the trees in the morning to clear them of all taint. Syringing must be discontinued when the fruits begin to colour, or cracking of the skin may occur; the skin of some varieties being more liable to crack than others, as, for example, Governor Wood, a good forcing Cherry, which requires very careful treatment while ripening. When the crop is ripe a light shading thrown over the house during hot sunshine, helps to keep the ripe fruit fresh for several weeks.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, APRIL 24 { Meeting of the Royal Horticultural Society's Committee, and Exhibition of the National Auricula Society, at the Drill Hall, James Street, Westminster.
Chesterfield Horticultural Society's Exhibition.

WEDNESDAY, APRIL 25 { General meeting of Fellows of the Royal Horticultural Society at 117, Victoria Street, Westminster, at 2 P.M.
Royal Horticultural Society's Examinations take place.
Midland Daffodil Society's Exhibition, at Birmingham (3 days).

THURSDAY, APRIL 26 { Manchester and North of England Orchid Society, Meeting.

SALES.

MONDAY, APRIL 23, Roses, Lilies, Herbaceous Plants, &c., at Protheroe & Morris' Rooms.

TUESDAY, APRIL 24, Odontoglossum Alexandræ, at Protheroe & Morris' Rooms.

WEDNESDAY, APRIL 25, Lilies, Decorative Plants, Tuberoses, Maples, &c., at Protheroe & Morris' Rooms.

FRIDAY, APRIL 27, Established and Imported Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—49° F.

ACTUAL TEMPERATURES:—

LONDON.—April 18 (6 P.M.): Max. 63°; Min. 44°. April 19: Fine; sunny; warm.

PROVINCE.—April 18 (6 P.M.): Max. 56°, Home Counties; Min., 46°, Shetland.

Hybrid Conference Report. We are glad to announce the publication of vol. xxiv. of the *Journal* of the Royal Horticultural Society, which comprises the whole of the report of the Hybrid Conference. The reports of the several conferences that have been held during the last few years at Chiswick and elsewhere have been full of interest, and reflect great credit on the Society. Unlike some of the work of the Society, which is of necessity ephemeral, the *Journal*, and especially the Conference reports, contain matter of abiding interest and permanent value.

We reported the proceedings of the Conference in our columns at length last year, and took pains beforehand to get together a mass of information concerning hybrid and cross-bred plants, that it is not requisite for us now to do more than indicate the contents of the present volume, which has been well edited by the hardworking Secretary, Rev. W. WILKS.

After some historical details, we come to a complete list of the hybrid plants exhibited at Chiswick. The names of these occupy no fewer than twenty-seven pages. Messrs. VITCH & SON contributed a truly wonderful collection of hybrid Orchids, Ferns, Nepenthes, and an interesting list of stocks whereon scions belonging to other genera had been implanted. The proceedings at the luncheon, the dinner, and other functions convey the impression that the meetings were of the most cordial and satisfactory character. The papers were contributed by numerous foreign guests as well as by our own scientists and gardeners, and their collective contribution forms a valuable addition to the literature of hybridisation. No systematic worker in this field will be able to dispense with this volume.

The Royal Horticultural Society. WHATEVER view the Fellows of the Royal Horticultural Society take on Wednesday next, it is

certain that the day will be an important one in the history of the Society. The centenary of the Society occurs in 1904, and in order to celebrate it duly, the Council has decided to abandon Chiswick and to purchase some fifty acres of land in the parish of Limpsfield. There they propose to form a new experimental garden, and possibly in the future to establish a real school of horticulture. The proposal is specious, it is grandiose, it is one of which in other circumstances we might approve; on the other hand, in the present financial state of the Society, it is alarming. Perhaps the alarm may be allayed when the promised explanations are laid before the meeting. Until they are, it is like beating the air to discuss them at any length. At any rate, we do at last know something for certain, such as that the Council holds itself pledged to vacate Chiswick, and we know the reasons alleged for that step. But nothing is irrevocably done, and the meeting can, if it chooses, liberate the Council from this pledge, if it appear better for the Society to remain at Chiswick till the lease runs out, and in the meantime, as we have previously suggested, rent a few acres in the vicinity of London as a trial ground. This commends itself to us as a much more rational procedure in the circumstances, than to incur the necessarily large expenses attendant on the purchase, development, and maintenance of a new garden in a very unsuitable locality.

For we know now that the proposed new garden is "in the parish of Limpsfield," Surrey, and it is an open secret that it is between two and three miles up-hill from Oxted Station; so that, to say nothing of the time expended in reaching and quitting the place, the cost of cartage of manure, bricks, and what not, must be very considerable. The nature of the soil, much of which is heavy clay, and other parts more or less water-logged, is such that if it can be rendered available for garden purposes at all, it can only be at great cost. Oxted itself is in a beautiful district, it is easily accessible from Victoria station, but not so readily from Charing Cross; whilst the visitor from the north or the midlands will have to cross London, get to Oxted by a notoriously unpunctual branch line, walk, or get conveyed to the hill-top; and after accomplishing the objects of his journey, he will, of course, have to reverse the process. Few, we imagine, will be the visitors!

At present we have not been definitely informed where the money for this scheme is to come from. Probably information on this point will be forthcoming at the meeting, for it is impossible to suppose the Council indifferent to a matter of such vital significance.

It may be asked, what is the immediate cause of this proposed expenditure? Is there any reason for incurring this great risk and large outlay? We can find none save what is alleged, the celebration of the centenary. If so, there are plenty of other schemes much less dangerous than the one proposed that would fulfil this purpose. We have cited some of them already, but all are more or less costly. We now suggest another, to which the same objections do not so forcibly apply. An exhibition including as many of the plants that have been introduced or distributed through the agency of the Society during its hundred years of existence, followed by a dinner and a conversation; one or both would be interesting, rela-

tively inexpensive, and practically entirely free from risk. Or a memorial prize might be instituted to commemorate the services of DOUGLAS, of FORTUNE, of HARTWEG, and of others, whose memory the Society, in spite of the honour they conferred upon it, so unaccountably ignores. This prize might be awarded to the collector who within a given time sent home the most important plants. Or the Society itself might resume the old work it did for a time so satisfactorily, and despatch its own collectors. At present collecting is done entirely for commercial ends, the result of which is that while certain plants run the risk of annihilation, others of equal interest are never seen among us. Indeed, there are numerous schemes, any one of which would adequately commemorate the centenary without incurring what seem to be the formidable risks attendant on the scheme favoured by the Council.

THE PROPOSED NEW GARDEN.—In view of the general meeting to be held on Wednesday next, it may interest some of the Fellows who will be present then, if we give some details in respect to the situation of Limpsfield, and the existing means by which visitors may reach the place.

It is an important fact that there is no railway station at Limpsfield. The nearest are at Westerham (on the South Eastern Railway), and Oxted. Except for visitors from some districts in Kent, that at Westerham will have no value. The other station, Oxted, may be reached from the London terminuses, Victoria and London Bridge, on the London, Brighton, & South Coast Railway; and from Cannon Street and London Bridge by South Eastern trains. There are only three trains in the day from Charing Cross. The best service from London is from Victoria and London Bridge, there being about twenty trains from each station daily. A few fast ones run in about forty minutes, but others occupy an hour, or more.

When Oxted is reached, Limpsfield village is about one mile distant, but the land it is proposed the society shall acquire is in the Limpsfield Common or Chart district, and this is more than two miles from Oxted. The pedestrian will find, too (as did the representative of the *Gardeners' Chronicle*), that the road there is not an easy one. The greater part of it is up-hill, and some of the slopes are steep. It would be a most expensive and heavy road for the conveyance of "material," whether for building or purely horticultural purposes.

If the visitor walks the distance it will take him about three-quarters of an hour, and the local cabs require very nearly half an hour. A visit from London would entail nearly three hours travelling by rail and road.

The soil at Limpsfield is most variable. Gravel, clay, and sand, may all be found in the neighbourhood of the Chart, and chalk, though not present, can be seen in the distance. The particular land it is proposed to purchase will probably prove to be a very short distance from the Chart, but upon a much lower level, near to the Caxton Home, and close to General Goldsworthy's estate. The soil there is very different to that quite adjacent to it, but more upon the slope of the Chart, where it is gravelly and stony. Indeed, if we are right in respect to the site, the soil will be found to be heavy clayey loam; and being situate at the foot of the slope it must necessarily be damp, if not wet. As agricultural land, and especially judged in comparison with the soil of the district, that of the proposed site may be good, but it is not the most suitable for an experimental garden such as Chiswick ought to be. To reduce it to this condition would need much time and great expense. At the present time, part is under grass, and the rest is arable.

The land around Limpsfield and Oxted is hilly,

and the locality is agreeable, even beautiful. A day or two ago the air seemed strikingly pure, and the song of larks over the area of the large common was incessant. It will be a long time before this rural spot can be materially affected by the extension outwards of conditions existent nearer the great City. The appearance of the village indicates that the very moderate population of the place enjoys quite average means. There is no sign of poverty. Its truly easy character was illustrated in a butcher's business premises, where we noticed a bunch of Bananas exposed for sale between a joint of pork and a leg of mutton. This is not specialism!

But it is extremely important to bear in mind that Limpsfield Chart is difficult of access, and

in the Drill Hall, Westminster, in connection with which the National Auricula and Primula Society will hold their annual show. A lecture on "The Cultivation of the Narcissus" will be given by the Rev. S. EUGÈNE BOURNE, M.A., at 3 o'clock.

— On Wednesday, April 25, a general meeting will be held at 2 p.m. at 117, Victoria Street, Westminster, when a proposition will be placed before the Fellows in respect to acquiring a new garden at Limpsfield.

THE DAFFODIL SEASON.—We would remind our readers that in addition to the display of Daffodils that may be expected on Tuesday next at the Drill Hall, Westminster, the Midland Daffodil Society will hold its second annual exhi-

class for Chrysanthemum blooms shown in vases, the 1st prize for which, £20, is given by Mr. H. J. JONES. The other prizes will be £15, £10, and £5, and these in addition to Gold and Silver Medals. We hope that the most will be made of these exhibits, for a grand effect is certain to be obtained if the vases are disposed to the best advantage. On the last occasion the exhibition of vases of blooms upon such a scale was an experiment, and it was therefore excusable that nothing was done to screen the nakedness of the tables upon which the vases were placed, or to relieve the vases of blooms themselves by intermixing with them a few graceful foliage plants of suitable height and colour. The President, Sir EDWIN SAUNDERS, offers a 1st prize of £15 for the best display of Chrysanthemum



FIG. 80.—CITY-WALL AND "DANE JOHN" MOUND, CANTERBURY. (SEE P. 241.)

that a visit there from Fellows in midland and northern counties, who must needs come through London, could not be made in the course of one day. It would be hopeless to expect members of the various committees to visit Limpsfield as often as they now visit Chiswick, unless the expenses of doing so are to be borne by the Society. And even if the Society obtain a concession from the railway company and the local cab-owners in favour of visitors to the gardens, the journey will still remain expensive in time and money. Should the acquirement of the land become a fact, and Fellows in time do come to visit the place, they will be apt to exclaim upon reaching Oxted, and with the further journey to Limpsfield Chart yet to be made, "Why! why wasn't it at Oxted, or, at any rate, at a more accessible place than Limpsfield?" And it will be a very sensible question.

ROYAL HORTICULTURAL SOCIETY.—The next meeting will be held on Tuesday next, April 24,

at the Edgbaston Botanic Gardens, Birmingham, on the following day, Wednesday, when prizes amounting to about £100 will be offered.

THE ANNUAL DINNER OF THE ROYAL GARDENERS' ORPHAN FUND, as we have previously announced, will be held on May 8 at the "Monico," Piccadilly Circus, W. Lord BATTERSEA will preside, and we hope that in a season when there are more than usual demands upon our charity, the cause of the orphans in our own profession will not be in the least degree overlooked.

THE NATIONAL CHRYSANTHEMUM SOCIETY.—We have received a copy of the annual report for the year 1899, and schedules of prizes to be offered at the Society's exhibitions to be held during the present year. The dates of these were published at the commencement of the year in our Almanac. At the November show, the most prominent feature will again be that of exhibits in the large

mums and fine foliage plants, to be arranged in such a manner as to half encircle one of the fountains on the floor of the Aquarium. Two such exhibits, should they be forthcoming, will be placed around each fountain. The 2nd, 3rd, and 4th prizes are £10, £8, and £6. The schedule offers considerable encouragement to types of Chrysanthemums other than Japanese and incurved; but there is need for even greater stimulus in the same direction in order to make the Society's exhibitions really representative of the extreme variation that the Chrysanthemum has shown under cultivation. This should be the aim of the Society rather than to gather in overwhelming numbers flowers of one type—be it Japanese or Anemone—that happens to be most popular at the moment. In respect to the early winter exhibition in the month of December, if the holding of this event is useful, it should result in the raising of naturally late-flowering varieties. We are not so sure that this is the case. On the last occasion particularly, the im-

portant prizes were awarded to large blooms of varieties that naturally bloom at an earlier period. Fresher but smaller blooms of *Chrysanthemums* that are known to be of great value because they bloom late in the season, but are not exactly "exhibition" varieties, found no favour. Care is necessary, then, that the prize-money at this exhibition should not be awarded to blooms that have been skilfully preserved by every means possible. All prize-money should be given to encourage the "cultivation" of the blooms, not the "preservation" of them. The Society may some day seriously consider whether the December show is productive of good in proportion to the expenditure of money necessitated by the holding of it.

TULIPA KAUFMANNIANA is in bloom in a border at Kew. Its dwarf habit, relatively large cylindric but widely spreading flowers, render it very attractive.

H.M. THE KING OF THE BELGIANS has, by deed of gift, on his sixty-fifth birthday, made over to the Belgian State those of his properties which contribute to the charm and beauty of the localities in which they are situated. "Anxious to preserve for these properties their purpose of adornment, I have made it my constant care that they should not be spoiled by any building which might change their character. It would be regrettable if their purpose should be destroyed, after my time, to the detriment of the beauty and salubrity of various populous localities. Being persuaded that it is fitting these properties should belong to the nation, I have resolved to offer them to Belgium, and I beg you to submit the deed of gift which I attach to this letter. Close to large towns, above all it is highly expedient to preserve open spaces with their natural beauties in the interest of the picturesque and of hygiene, and it is particularly so when these spaces are adorned with plantations already large and laid out in lawns and gardens bordering on the boulevards. It is the continuance of this arrangement of these open spaces, which have cost the public Treasury nothing, that I desire to safeguard in the future. However modest may be the works of embellishment which I have carried out, it is of moment that they should not be lost to future generations." The properties comprise the noble domain of Laeken, close to Brussels; the marine residence at Ostend, and the chateau in the Ardennes.

APPLES FROM THE ANTIPODES.—The officials of the Orient R.M.S. Company inform us of the sailing from Australian ports of the *Ormuz* with 10,500 cases of Apples; the *Aberdeen*, with 18,000 cases; and the *Victoria*, with 9,400 cases—or a total of 37,900 cases.

THE MARTIN MEMORIAL FUND.—The Committee of the Martin Memorial Fund direct attention to the fact that they will be closing the fund in question on May 12. The amount already raised is £133 7s., including a donation of £50 from Messrs. SUTTON. The Secretary is Mr. H. G. Cox, Fernlea, Junction Road, Reading.

MR. A. E. P. GRIESSEN, lately superintendent of the Royal Botanic Gardens, Calcutta, has been appointed superintendent of the Taj Gardens, at Agra.

M. COGNIAUX.—A recent number of the *Moniteur Belge* gives the report of the jury charged to award, in 1899, the decennial prize allotted (for the period 1889-1898) for distinction in botanical science. M. CRÉPIN, in his presidential address, alluded to the botanical notes and memoirs, more than fifty in number, published during the period under review by M. COGNIAUX, Professor at the Ecole Normale, Verviers. Among his more important works, are those relating to the Melastomataceae, and to the Orchidaceae. In 1878 this indefatigable scientist had published in MARTIUS'S *Flora Brasiliensis*, the monograph on the Cucurbitaceae. He devoted to the same family, in 1881, a general review, which appeared in the *Monographie*

Phanerogamarum, and received from the Geneva Physical and Natural History Society the quinquennial prize founded by AUGUSTIN PYRAMUS DE CANDOLLE. His co-operation with the *Flora Brasiliensis* did not then cease. After Cucurbitaceae, he dealt with the Melastomataceae (two volumes, from 1883 to 1888), of which he also published, in 1891, an excellent monograph in the *Monographie Phanerogamarum*, which forms, as is known, the sequel to the *Prodromus* of DE CANDOLLE. Suffice it to say, that of the 2751 species described in this large volume, nearly 800 are due to M. COGNIAUX. When, after the death of EICHLER, Dr. URBAN, of Berlin, became Editor of the *Flora Brasiliensis*, he requested M. COGNIAUX to undertake the editing of the Orchidaceae, the only remaining family of importance still to be elaborated. The task might have seemed overwhelming, but M. COGNIAUX attacked it bravely, and, thanks to his experience and bibliographical skill, was able, in less than six years, to complete the study of half the Brazilian Orchids. Five fascicles appeared from 1893 to 1898, representing more than 800 folio pages, with 182 plates. It is only fair to mention also here the names of Professor PFITZER, of Heidelberg, whose system of Orchid classification M. COGNIAUX adopted, and that of M. BARBOSA RODRIGUEZ, Director of the Botanic Garden, Rio de Janeiro, whose admirable illustrations and descriptions were largely used. M. COGNIAUX nevertheless did much of the work himself, revising the whole, describing 859 species, of which 54 were new, and indicating the generic place for 100 of them. The President, in concluding his report, announced that of all the botanical works issued in Belgium, or by Belgian savans, during the ten years under discussion, those of M. COGNIAUX were voted to be the most important. The decennial prize was therefore awarded to M. ALFRED COGNIAUX.

SHORTIA GALACIFOLIA, a beautiful little plant, with flowers like those of a Soldanella, but creamy-white, and of much interest to botanists, is in bloom on the rockery at Kew, and also in the Alpine-house.

SYNTHYRIS RENIFORMIS.—This is a dwarf, herbaceous perennial, with stalked reniform leaves, and dense spikes of pale blue flowers, like those of a Veronica, from which it differs in its alternate leaves and 2-3 and not 4-lobed corolla.

CAPE FRUIT.—The Union Castle Company send us particulars relating to the cargo of the ships *Norham Castle* and *Pembroke Castle*. The former brought home 723 cases of Grapes, 114 cases of Plums, 19 of Pears—858 cases of fruit. The *Pembroke Castle* brought 427 cases of Grapes and 90 of Plums—517 cases. The greater part of the Grapes were Raisin Blanc, which arrived in perfect condition and found a ready sale at top prices—17s. 6d. to 23s. per box of 20 lb. being the rule. White and Red Hoonnepoets also came, but did not carry so well as the Raisin Blanc, and obtained but 10s. to 12s. per box on an average. It may be noted that this latter variety scarcely ever arrives in as good a condition as do the others. Plums were in good condition, but the demand being small, the price achieved was only 8s. to 9s. per box of thirty. Pears were a private consignment, and were in excellent condition.

CINERARIAS.—The bushy Cinerarias of the Cruenta section raised at Kew are particularly beautiful just now. They may be seen in No. 4 house particularly. The ordinary florists' Cinerarias are hardly to be mentioned in the same breath.

RANUNCULUS CORTUSIFOLIUS.—This tall and handsome species, to which we have referred on former occasions, is a very striking object in No. 4 house, with its bold foliage and large spreading paniced cyme of yellow flowers.

THE FRUIT OF SOUTH AUSTRALIA.—An old correspondent who has for some years been interested in the fruits of our Australian colonies, a

few months since made application for information to the Minister of Education and Agriculture at Adelaide, and that gentleman has kindly taken an interest in the matter, and forwarded, under date March 5, a communication from which the following extracts are made:—

The Vine.—The statistics issued last year gave the Vine area as 19,159 acres; very possibly this has been increased during the past season by some 300 or 400 acres. The season was not favourable to newly-planted areas. The yield for 1898 is the only one officially given, and it is reckoned at 1,283,998 gallons. The yield for last year was probably slightly below this figure; whilst the vintage at present in hand will probably be lower still. The dryness of the winter, followed by a dry spring and summer militated against a heavy yield, but the principal factor affecting the yield was the late frost in October, felt in almost every vineyard. Growth was satisfactory in the well cultivated vineyards, and poor in those badly cultivated, and in dry localities.

Other Fruit.—The yield of fruit this season (1899-1900) was extremely variable; a succession of dry seasons, followed by a series of severe frosts in some parts, are no doubt accountable for the diminished yield. Strawberries and Cherries, which are grown in the more favoured elevated districts, have been abundant. These are consumed locally, or exported to Broken Hill, N.S.W., and West Australia. The supply of Apricots, Plums, and Peaches, were not sufficient for the local domestic supply, and the preserving works; the latter are gradually extending their operations, and are successfully entering into competition with the American products in the adjoining Colonies. Pears on the whole are scarce, and the local demand will scarcely be met. Gooseberries, Raspberries, black and red Currants, have been very scarce; the crop of Apples is moderate. Codlin-moth is reported to be somewhat less destructive than in former years, probably owing to the restrictive measures used by the orchardists under Government regulations. Last season about 12,000 cases (bushels) of Apples were exported to Europe, and several hundreds to South Africa and the East Indies. This season a somewhat similar quantity will be shipped, but many thousands of additional cases would be exported if the shipping space were available. The export of Apples is a growing industry in this Colony, and growers are eagerly looking forward to other than the mail steamship lines taking up the carriage of Apples in cold storage.

NARCISSUS KING ALFRED.—We are indebted to Mr. KENDALL for sending us specimens of this Narcissus—a very bold form of the Ajax section, remarkable for its very reflexed lobed corona. It is one of the handsomest of its class, and received a First-class Certificate last year.

THE WEATHER IN WEST HERTS.

A WEEK of warm, bright, and windy weather. On the 14th the temperature in shade rose to 62°, which is the highest point as yet reached this year. On the coldest night, the exposed thermometer showed 4° of frost. At 2 feet deep, the ground is now of about seasonable warmth; but at 1 foot deep, the temperature is still rather low. Very little rain has fallen for nearly a fortnight, simply occasional light showers. The sun shone on an average for rather more than six hours a day, or for about an hour a day in excess of its mean daily duration for the time of year. The winds have come principally from some westerly point of the compass, and have been at times exceptionally high; for instance, between 4 A.M. and 4 P.M. on the 13th, the average velocity amounted to 22 miles an hour; and in the middle of the day the gusts were often equal in strength to those in a fresh gale—direction W.N.W. The Wood Anemone was first in flower on the 13th, which is eleven days later than its average date in the same wood for the previous

eight years, and later than in any of these years. The swallow first visited the Watercress-beds at Berkhamsted on the 12th, or five days later than the mean date of its arrival in the previous ten years. *E. M., Berkhamsted, April 17.*

LATE-FLOWERING ROSES.

OWING to the warmth of the weather during the autumn of 1898, I was able to set up the accompanying group of Rose blooms at the exhibition of our local Chrysanthemum Society, which was held on November 9. The Roses depicted in the illustration (fig. 81) were principally Teas and hybrid Teas. As in no previous year I had been able to gather such fine and clear blooms so late in the season, I decided to have a photograph taken of the display, so that I might have a permanent representation of this, so far as my own garden is concerned, record exhibit. *E. M., Berkhamsted.*

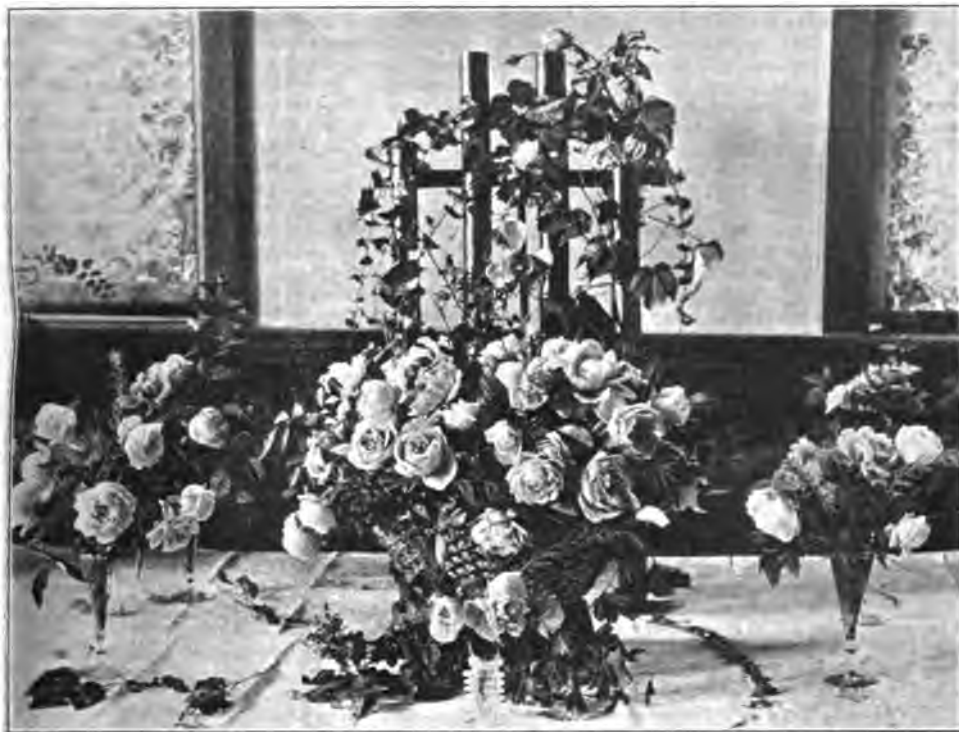


FIG. 81.—AN ARTISTIC DISPLAY OF ROSES FROM THE OPEN GARDEN.

(Exhibited at a Chrysanthemum Show in November by Mr. Ed. Mawley, Honorary Secretary of the National Rose Society.)

FOREIGN CORRESPONDENCE.

A NEW DAHLIA.

IN printing my note upon p. 85, vol. xxvii., you added a figure of *D. excelsa*, suggesting that the one of which I wrote was, perhaps, superficially, like that; and your correspondent, Mr. Gebhard, on p. 176, suggests that it is the same as Heinemann's "Aegir," or, at any rate, like it and descended from it. He kindly gives so full a description of that variety that I am able to say that mine does not resemble it at all. Mine is not in the least like a double *Pyrethrum*, or like *D. excelsa*. There are no "tubes enclosing the anthers, that is, no conspicuous one;" the centre is filled, not with tubes, but with very narrow and perfectly flat petals, a little broadened towards the tip. Your readers may be sure that my plant, whatever its merits or demerits, is unlike anything heretofore described. We care little for the origin, it is true, of races of flowers, but I am able to state that not

only is Aegir utterly unlike my seedling, but that circumstances make it impossible that it should have been an ancestor of it. *W. E. Endicott, Canton, Mass., U.S.A.*

LAW NOTES.

A LONG FIRM.

WILLIAM HENRY PICKERGILL, age 45, a clerk, and Alfred Johnson, aged 44, tea-planter, were indicted at the Middlesex Sessions, before Mr. Montague Sharpe, for obtaining various sums of money by means of false pretences. Mr. Slade Butler stated that Johnson was in the habit of buying nurseries, paying a deposit by a worthless cheque, upon the strength of which he borrowed a few pounds in cash from the seller. He advertised for a partner with capital, but never completed the purchase. Through Pickersgill he bought various

HOME CORRESPONDENCE.

THE ROYAL HORTICULTURAL SOCIETY.—The suggestion made by your correspondent "V.M.H.," p. 222, that the Society should establish a College of Horticulture, is one that deserves careful consideration. Those who are acquainted with the magnificent work which is being done in the horticultural departments of certain of the American universities, in the numerous Government experiment stations of the United States and Canada, and in the various technical colleges on the continent, cannot but feel humiliated by the almost entire absence of similar institutions in this country. That an adequately equipped and efficiently staffed college, under the auspices and control of the Royal Horticultural Society, would be capable of doing work of the very greatest value, few will deny. The intimate connection between the college and the various committees of such a society as the "Royal," would be an immense advantage. The latter might be regarded as standing in about the same relation to the permanent college staff as that of the consulting physicians and surgeons of the great hospitals to the resident staff, and might be consulted about matters requiring the aid of the specialist. It should be borne in mind that such an establishment would involve considerable initial outlay, and a substantial yearly expenditure; for as is well known, practical science teaching and experimental work are exceedingly expensive. Those who are acquainted with the early history of, for example, the Royal Agricultural College at Cirencester, and the Horticultural College at Swanley, will remember the financial difficulties that had to be met at the outset. The Council of the Royal Horticultural Society would, of course, before taking any definite steps in the matter, ascertain precisely what pecuniary assistance they could reckon upon receiving from sources other than the society's ordinary revenue. But it is not likely that a really efficient college, worthy of the traditions of the society, would fail to obtain substantial grants from the county councils and other bodies having funds at their disposal for the encouragement of technical education. *C. W. Herbert Greaves, Lecturer on Horticulture to the County Council of Salop.*

THE HORTICULTURAL HALL OF THE FUTURE.

—I am assuming this will come in course of time, for its necessity is universally recognised. I can suggest no better site for it than the gardens of the Royal Botanic Society in the Regent's Park, provided the Crown would be willing to grant a tenancy on such terms as would practically amount to a freehold. The excavated site of the once famous exhibitions of the Society is of the character of a white elephant; the adjoining conservatory is at present a home for much rubbish in the way of plants and birds. Add the present range of houses and offices, and we get an admirable and commodious space, supposing it were possible to obtain this site, it would mean the amalgamation of the Royal Botanic and the Royal Horticultural Societies. Is this an impossibility? Then the botanical gardens in the Regent's Park occupy a much more central London position than they did a quarter of a century ago, by reason of the remarkable development of London on the north side. Then it, the garden, is on the whole reached without difficulty, and it is in one of the pleasantest parts of London, with a magnificent park on the north and north-west sides; and there are examples of high-class gardening in a London park close by. Supposing that it were possible to erect a Hall in the Regent's Park, ample facilities for reaching it from all parts of London would soon be forthcoming. The great obstacle in the way of obtaining a site elsewhere is the cost. It requires a big fortune to secure a freehold in any central part of London; and could the proposition be entertained by the two societies, and their co-operation assured, some assistance might perchance be obtained from the Government of the day. To some, my suggestions may appear as the details of a wild dream; but they are put forward as a contribution to a discussion which has centred round a horticultural want, and which becomes more pressing day by day. I am writing in entire ignorance of the terms of the present tenure upon which the gardens are held by the Royal Botanic Society from the Crown. *R. Dean.*

THE ROYAL HORTICULTURAL SOCIETY.—The *Gardeners' Chronicle* deserves the thanks of all

goods from tradesmen, and paid for them by means of worthless cheques; and got change from tradesmen, who parted with their goods and cash, in exchange for worthless pieces of paper. According to the various note-headings produced by Detective-sergeant Fowler, Johnson under various names was doing a big business at Saracen House, Snow Hill, Rio Janeiro, Covent Garden, and elsewhere. At the City address, "Windsor & Co." had one room, and had disappeared since the arrest of the prisoners. There were a number of these worthless cheques still about.

The defence was, that Johnson's correct name was William Joseph Kemp. He was a Fellow of the Royal Horticultural Society [!], and was doing a legitimate business with Pickersgill as his clerk. His brother was Orchid-hunting in South America, and he expected money from him to meet the cheques he had given.

The prisoners were found guilty, and a previous conviction was proved against Pickersgill. The prisoners were each sentenced to three years' penal servitude.

Fellows of the Royal Horticultural Society for the impartial and earnest manner in which it has dealt with the great questions now under consideration. It is very desirable that the matter to be brought forward on April 25 should not be disposed of hurriedly, for the future prospects of the Society will be affected for many years by whatever decision is arrived at. There appears to be a general opinion in the midland and northern counties that the primary considerations are as follows:—1st, The most important work of the Society is that performed by the committees. 2nd, The present accommodation for the committee meetings and the attendant exhibitions of novelties is deplorably inadequate. 3rd, That the primary object of the Society should be to develop its most important work. 4th, That any new garden should be so selected that it may be accessible to, and of real service to, the largest possible number of Fellows; also, that any expense incurred in such a scheme should not be of a nature to interfere with the essential work of the Society. If these matters could be discussed by the Fellows on Tuesday, the day before the general meeting, some course of action might be resolved upon. *A Northern Fellow.*

—The proposal to establish new experimental gardens at Limpsfield in Surrey, in place of those at Chiswick, demands much consideration by the Fellows before it is finally accepted. Complaints are often made by Northern horticulturists because the Society is so inaccessible to the majority of them; there is much truth in these complaints, and when the Society removes from Chiswick a favourable opportunity will arise for bringing the Northern and Midland Counties into closer connection with it. Why cannot a site be obtained about the same distance this side of London instead of going into Surrey? The district around Sandy, Biggleswade, St. Neots, Bedford, &c. contains some of the finest land for vegetable and fruit culture in England, and is not so inaccessible as this Surrey site. I know the neighbourhood of the latter place, having lived close by about twenty years since, and have no objection to urge as regards unsuitability of soil or situation so far as vegetation is concerned, but it seems a great injustice to the Northern, Midland and Western counties and Scotland, as it is going much further away from them, and will thus increase the feeling of unfairness which is often urged against the Society. The wretched railway accommodation south of London is well known, and needs no comment. A national Society like the R.H.S. ought to be, should endeavour to render itself equally accessible to all parts of the nation as much as possible. In a new garden, if the Society increases in prosperity, we may hope for greater usefulness, and more interesting work than has been possible at Chiswick lately, and with this will come increased interest in the work from all parts of the kingdom; the demand for scientific aid to horticulture is sure to increase by leaps and bounds as years pass on. Whatever place is decided upon, I trust the good work now being done will continue and increase. The last number of the *Journal* (vol. 24) just received, is alone a very strong claim to an united and enthusiastic support from the whole body of horticulturists in this country. *W. H. Divers, Belvoir Castle Gardens, Grantham.*

SHOULD CHISWICK BE ABANDONED?—Take one example: the conversion of the huge conservatory into the magnificent vinery at Chiswick. It is one of the most impressive and potent schools of horticulture ever founded in any country, and from which probably more experts in Grape-growing have graduated or been assisted, than from all other schools of horticulture combined. It raised our ideas of Vine-growing to a higher level, and whilst exciting our admiration by its size, commanded our imitation by its success. Similar views might be expressed as to the hardy fruit and other trees in the old grounds, the Pears and other fruit trees at Chiswick. It is almost certain that unless a new Chiswick can be formed within easy reach of the old one, the Society would lose a good many members through changing its gardens; and if very near, the site would be subject to the objections and drawbacks climatal and otherwise, as the old gardens. The chief of these—and it has been urged with great tenacity—is that the soil of the old Chiswick gardens is exhausted. This is a serious reflection on the number of distinguished men who have managed

these gardens from the days of Mr. Robert Thomson to the régime of Mr. Wright, the manager and successor to Mr. Barron. It can hardly be believed that any of these eminent gardeners who have had the management of Chiswick would urge this plea of soil exhaustion; the state of all fruit, flower, and kitchen-gardens under liberal culture being all the other way. I must say that I have failed to find traces or symptoms of exhaustion, but rather signs of excess; and, as a matter of fact, the latter is far more likely to occur in old gardens than the former. Take, for example, the gardens at Sion House, not so far from Chiswick, and hardly so favourably circumstanced as the latter. No; the first business of such able cultivators as Mr. Wythes is not only to maintain but to augment the productive power of the soil considerably in advance of all possible demands made upon it. And no argument has been advanced to show that the able series of horticulturists who have managed Chiswick since its foundation have allowed the soil of those gardens to become so exhausted as to be incapable of fairly testing seeds, plants, or crops. Such charges are easily made, and difficult of disproof. But then the climate is so foul, so crowded with smuts and blacks, and freighted with fogs, that best crops and trial-seeds are begrimed beyond the possibility of healthy growth, and easy and clear vegetation. But pause a moment! Is the climate of Chiswick worse than that of Syon or the Royal Gardens at Kew? Before taking the irrevocable step of running away from Chiswick and the environment of London into the rural districts, it will be well to make doubly sure of two classes of facts re-stated in your leader. The first is, the prospective deterioration of the air near London; the second, that it cannot be improved by anything we can do. It may seem presumptuous for a provincial to dispute either point. Barring the black or yellow fogs that rise from the Thames, Chiswick air is far purer than that of many other districts, and the Royal Horticultural Society might incur an enormous expense and an irrevocable loss of prestige by going further and faring worse. By stopping the smoke nuisance, the air might be so greatly purified that any pollution left could be easily dealt with and neutralised by heavily spraying overhead from the water mains. The fact of thus being enabled, through the suppression of nuisances and the copious use of cold-water, to continue to grow fruits, flowers, and vegetables to perfection so near London, or even in the great city, would prove a more powerful stimulus to horticulture than any number of experimental gardens far away in rural wildernesses in the country. The Royal Horticultural Society had better think once, twice, thrice, or many times, before rushing its fine gardens away into the country; and besides, as you have already hinted, the atmosphere may be screened clean through glass and other barriers for very special tests and experiments. But I wish to confine my remarks here and now to the two points—whether the soil in the Chiswick Gardens, and the atmosphere, have become too poor or polluted for horticultural purposes? and my reply to both queries is an emphatic "Not proven." No one can put the third objection to leaving the old home more forcibly than you have done in your Leader, p. 136. It is threefold extra expense, greater distance from London, fewer visitors than at Chiswick. The fourth reason for abandoning Chiswick is to obtain fresher and more reliable trial grounds elsewhere. A prior question might first be asked, viz., whether it is worth the while of the Royal Horticultural Society to continue its trials of seeds, plants, flowers, and crops on its present lines? With the enormous development and improvement of these testings and trials through the trade, those of the society have lost much of their old value and significance. Almost every tradesman has organised his own special demonstrations as tests of purity and quality on a scale that no society can hope to compete successfully with. Having various societies, commercial companies, colleges, county councils, and most of our leading seedsmen demonstrating in all directions the purity and excellence of seeds and produce, it might be worth while to pause and enquire whether experiments with artificial manures and the effect of the latter on the size, quality, flavour, and colour of produce might not be more useful than the testings and certifying of seeds and produce. The other points in the programme for the new Chis-

wick, such as a larger, better home for the meetings of the society, the establishment of a horticultural college through the aid of certain county councils, could be better, easier secured in the present home of the Society, than anywhere else further removed from London or its immediate environments. The Lindley Library and the belongings of the Society would also be more useful in town than anywhere else. To have horticultural buildings for shows, meetings, &c., in London, and to hold gardens in the country for trials and proofs of seeds, &c., might weaken rather than strengthen the Royal Horticultural Society. In any attempt that may be made to establish any co-operation with county councils, the Society will need to guard jealously its freedom and independence. In all the efforts for the education of gardeners, cheapness should be combined with efficiency. The cost even at the old Chiswick has proved an insuperable barrier to the entrance of not a few of the most promising students. To combine to the utmost the sound practice with the most useful science in horticulture, the most promising material for students should be drawn from the sons of successful gardeners. However, there are very few of these who can stand up long against a tax of some £70 or more a year at Chiswick old or new, Swanley, or any other college, for their son's education. For years I have advocated that the Royal Horticultural Society might have done more than it has yet done for the education and elevation of gardeners. In bringing itself more into line with the genius and work of the new century, it might reconsider the matter of giving doles of plants to its members, and selling them fruit at reduced rates—a policy that must cause not a little work and worry to the Society—and devote the money thus saved, and from expenses on trial-grounds now largely superseded, to the establishment of bursaries for free education for promising boys or girls in their gardens at Chiswick or elsewhere. The Royal Horticultural Society also reaped some of the highest honours through its collectors, and such men as David Douglas and Robert Fortune enriched our country as well as covered the Society with glory. Instead of expending its capital and its energies on new gardens—whose mission of greatest usefulness may be well nigh exhausted—perhaps the Society might celebrate its centenary with equal honour and more profit through despatching one or more collectors to some of the newer and less explored regions of the globe. *From the North.*

MISLETO ON A PEACH TREE.—It may perhaps be interesting to put on record an instance of Mistletoe growing on a Peach-tree. This I have recently seen in Captain Parlbys garden, Manadon, Devonshire. The tree is growing against a wall in the usual manner, and the gardener informs me that the seeds were not intentionally put on the tree, but were probably deposited there by a bird. I think that this host for Mistletoe is rare, as I have not before observed it. Has any reader seen a similar case? *W. Goldring, Kew.*

HEPATICA ANGULOSA, ETC.—In reference to the inquiry respecting the soil that seedlings of the above are growing in, as remarked in the *Gardeners' Chronicle*, it is only ordinary soil on the border of my cultivated land. They are growing with Cowslips, Primroses, Polyanthus, and many other herbaceous perennial plants. The flowers are not so large as those of *H. angulosa*, and they are the same in my garden, where it has been for hundreds of years. I suppose they sow themselves and are mostly left to remain, many in the paths; but being old, I do not attend to them as in days gone by. *J. C. Didcot.*

WEST AFRICAN KARROO PLANTS.—I was much interested with the two illustrations of succulent plants in your number of April 7, namely, *Decalobone* and *Mesembryanthemum truncatellum*, but you gave no description of the last-named plant. [It was referred to in a previous article on the "Flora of Namaqualand." Ed.] You are mistaken when you say *Mesembryanthemum truncatellum* is among the plants at Kew. I do not think the plant figured is *Mesembryanthemum truncatellum*, which is a much larger plant, and has yellow flowers (you do not state the colour of the flower of the plant figured), which none of this group at Kew have. The colour of the flowers of those of this section at Kew are white, red, and pink, none yellow. You say the resemblance

between [the plants and the stones among which they grow may be protective. I have found many species of this section growing in the worn channels of upheaved slate, which rather had the effect of making them conspicuous than of protecting them. *Mesembryanthemum Bolasii* is a very distinct plant, and does not belong to nor resemble any of the plants of the above section (subacule, Haw.), but to his section (*Semeteretia*). *Thos. Cooper, Reigate.*

CINERARIA STELLATA (SUTTON'S STAR).—Those who have to meet a great demand for flowers at this time of the year will do well to cultivate this *Cineraria*. For large conservatories it is very useful, as plants from seed can be grown in 6-inch pots, and being from 2 to 5 feet in height, with heads of bloom as much as 3 feet across, they are most effective. The colours are mostly selfs, pure white, sky-blue, and crimson, being very conspicuous. The flowers are excellent for cutting, and last quite fourteen days in water. Sprays for filling large glasses may be cut with long stems. Arranged with Ferns or other suitable foliage, this plant is very charming, whether used for table or house decoration. *L. G. Read, Mayerton Gardens, Wincanton.* [A quantity of lovely blooms, which arrived with the above letter, fully bears out the description of them by our correspondent. Visitors to Kew this spring have doubtless admired some of the hybrid *Cinerarias* that have bloomed in the greenhouse known as No. 4. Ed.]

BEGONIA GLOIRE DE LORRAINE.—I have read the experience of correspondents in the pages of the *Gardeners' Chronicle* that this *Begonia* is not fertile. It may therefore be of interest if I state that there are here three seed vessels, one on one plant and two on another, that promise to produce fertile seeds. Unfortunately the blossoms were not noticed until it was too late to fertilize them with pollen from another variety. *Thos. Coomber.* [Seed vessels are not uncommon. If you should succeed in raising seedlings, please communicate the fact. Ed.]

PARSNIP "TENDER-AND-TRUE."—There has been some discussion relating to the above Parsnip, owing to a dish I exhibited at a late meeting of the Royal Horticultural Society, and I notice your correspondent, "J. G. W." (p. 325), speaks very highly of it. In a footnote the editor asks, "Has he grown the 'True Student' of Messrs. Sutton & Sons?" I may mention that I have grown the two varieties side by side for the past two seasons, the seed being supplied by Messrs. Sutton, and there is no question as to their being perfectly distinct, both in foliage and the root. When lifting the remains of our crop last month, I was much struck by the very superior roots of *Tender-and-True* over that of the *Student*, and it was this that induced me to send up the roots of *Tender-and-True* to the Drill Hall; but I regret that I did not send the *Student* for comparison. The latter with us has not nearly such a hollow crown as that of *Tender-and-True*, and the roots are much more coarse, and not nearly of such pleasing appearance. I regard this variety as the finest that has yet come under my notice, and for exhibition purposes it has no equal. *E. Beckett, Aldenham House Gardens, Elstree, Herts.*

APPLE NEWTON WONDER.—I consider this variety will prove to be one of our very best late Apples, as it not only keeps fresh and sound with me under ordinary care until the middle of April, it also retains its flavour better than many of the late varieties. Mr. Camm, p. 235, mentions it as liable to spot when grown in his kitchen garden; but not so if grown on poor soil. Mine were gathered from a young tree on the English Paradise Stook growing in the kitchen garden, and were assisted with liquid-manure during the hot, dry weather. There is not a trace of spot about them, although Warner's King and other varieties grown by its side, and under the same conditions, were badly spotted. The variety is a vigorous grower on the Paradise, but it bears freely, and I congratulate the raiser, Mr. W. Taylor, King's Newton, Derby, on the excellent variety he has given to us. *W. H. Divers, Belvoir Castle Gardens, Grantham.* [Two fruits sent with the above letter are capital specimens. Ed.]

TOMATO CULTIVATION.—Much has been said and written in your valuable paper respecting the cultivation of the Tomato, and I notice on p. 181,

Mr. J. Lowrie states that the Tomato is fastidious in the matter of nutriment; but my fourteen years of experience in growing Tomatoes tells me that if the plant be properly managed, it will thrive in almost any kind of soil that is not destitute of plant-food, and that it will thrive when afforded almost any sort of manure. Secondly, he stated that he would refrain from using manure of any kind rather than apply foul and offensively-smelling manure. I may state the finest house of Tomatoes that I ever saw was grown with rank manure brought straight from stables and farmyard, and put on the beds 6 inches deep, then well trodden, and finally a layer of turf cut from the heading of a limestone quarry was put over all and firmly trodden, after water had been copiously afforded. The plants that were set out were strong ones, and there was no trouble with setting, no fly, fungoid, nor any disease whatever. After four good trusses of fruit were set, liquid-manure from the tanks in the farmyard was afforded twice a week. As soon as the first began to colour, I raked the surface of the beds, and gave the plants a dressing of leaf-mould and Mushroom-bed manure, which saved much labour in applying water, also was a prevention of "spot" and other fungous maladies; and I am sure that as good Tomatoes may be grown with farmyard manure, turf, and a small quantity of lime, as can be grown with any artificial manure. We must also give more air to the plants, and less water at the roots. *F. H. Pinchin, Scovellon Hall Gardens, Haverfordwest, Pembrokeshire.*



FIG. 82.—AN INSTRUMENT FOR TRANSPLANTING BUDS.

EDIBLE PEAS.—Possibly some enthusiastic admirer of that more promising and useful section of the Pea family—those that are edible—will be disposed to promote a conference in relation to them. Well, if conferences should be held, and if they mark horticultural advances, then one devoted to edible Peas may be as usefully instituted as for any other subject. But from a decorative aspect—and anything termed decorative finds at once hosts of emotional admirers—edible Peas have no value. Even the best-grown of rows, when in full bloom, have, in the estimation of the æsthetic cult, no more of beauty than has a row of Potatoes. There is no getting up of steam in relation to the floral feature of these useful garden Peas. They are nowhere with the Sweet and variously-coloured Peas, for those are indeed beautiful. Yet they leave behind nothing that is edibly useful; whereas the other Peas do produce much that is not only edible, but is of delicious quality. Balancing characteristics, if the Sweet Pea is lovely when in bloom, the edible Pea is useful and profitable food, so that at least the latter is as important as the former, if it be not more so. However, whilst I do not quarrel with those who think the Sweet Pea worthy of a conference, I do think if conferences have in them any elements of practical value, that the podding Pea is more worthy of such honour and notice. But, after all, what of benefit for the garden Pea can a conference accomplish? Hardly can the Pea be more widely grown than it is; hardly can it help to produce better varieties, whether in relation to earliness, quality, or cropping excellence; yet there is no telling, all the same, what may result, and as the unexpected so often happens, who can tell but that something showing yet greater

perfection may be produced? To some extent, a conference may help to classify varieties if such classification has any value. We put Peas now into dwarf, medium, and tall sections, and into round, whites, and blues, and into wrinkled marrows; some of which may be termed white, and some blue, but the majority seem to be intermediate. We class them as early, mid-season, and late, the distinctions being very infinitesimal. Possibly a conference could show that no longer need the old hard white rounds and blues be sown in gardens or fields; they have been practically abolished from many gardens already, but will be hard to dispense with yet in fields. We have, however, numerous fairly hardy wrinkled marrows that are very precocious, and if these are shown to be as early, hardy, and profitable to grow for first pickings in fields, and also produce finer pods with Peas of greater table excellence, much will have been gained; and the old hard rounds might then be dispensed with absolutely. Reform as to nomenclature it would be useless to undertake. There are myriads of Peas in cultivation, and they are unfortunately being constantly added to, the distinctions between them few can see, the diverse names being the chief difference. It would be folly to attempt to revolutionise nomenclature, as there is not a seedman who would accept any conference rulings. But a great trial conducted on good holding soil under the best cultural conditions, and with thin sowing, might render service in enabling the promoters to determine which are the best twenty varieties of diverse heights and seasons, and then by making such list public, the million might know out of the great numbers offered to them which were really good and which indifferent. But conferences of this nature should originate with the Royal Horticultural Society, and not with scratch committees. *A. D.*

A TOOL FOR TRANSPLANTING BUDS.

THE useful tool shown in fig. 82 was recently illustrated in the *Scientific American*, and was invented by Duncan Galbreath, of New Orleans, La. The use of such a tool would appear to render the operation of removing buds for insertion upon other plants so simple, that we reproduce the following description of it which appeared in the journal named above:—

"The tool consists of two pivoted levers or handles, each having a cross-head upon one end. To each cross-head a pair of blades is screwed, formed with concave cutting-edges, so that when the handles are brought together, only the top and bottom portions will touch. The space between the blades is open, so that the bud cannot be injured. The pairs of blades, constituting jaws in effect, are held in adjusted position by a link which is pivoted to one handle, and which is made to receive a set-screw carried by the other handle. The jaws are fitted to the exterior of the limb, twig, or branch, the bud being midway between the pairs of jaws. After the blades have been closed firmly around the branch, and locked in adjusted position, the tool is turned so as to cut a sleeve or ring of bark from the branch, as shown in the small figure. The limb to which the bud is to be transplanted has a section of its bark removed by a similar tool, the space thus formed corresponding in length with the sleeve of bark carrying the bud to be transplanted."

FORESTRY.

THE TREATMENT OF GAME PRESERVES.

PERMIT me to reply, as shortly as I can, to Dr. Schlich's article on this subject in your issue of April 14. Dr. Schlich's remarks are based on statements contained in the game chapter of my book, but while professing to deal with the subject of "Game Preserves" generally, he only tackles the preservation of pheasants, which is a much more restricted aspect of the question than foresters in this country have to face. In my book I include under the head of "Game obstructions to good forestry," rabbits as well as pheasants, and herein lies the weak point of Dr. Schlich's case. In his second column he, in a rather obscure passage, admits that even his plan of standards or high forests, over

coppice, "can only be maintained" where "ground game," otherwise rabbits, are not permitted to exist, but not a word about dealing with these vermin that the keeper nurses in every wood. This brings us both on to common ground. Neither coppice nor standards nor any other timber crop are possible where rabbits prevail. That every forester knows; also that high, leafless trees, with a deciduous underwood of Hazel, Oak, or Ash, are not the best for pheasants, because such a wood is too thin and too cold, for which reason pheasants usually leave it before the shooting season is over. Are the leafless, naked boughs of Oaks and other hardwoods suitable perches for a warm-loving bird like the pheasant, throughout the winter, and where, but among isolated standards over coppice could you provide such opportunities for the poacher? Mr. Tegetmeier, who is an authority on game as Dr. Schlich is on forestry, in his book on *The Pheasant*, speaking of pheasants' coverts, says: "that the temptation which these birds offer, when perched upon naked Larches and other trees at night, is too strong to be resisted by many a lad or working-man in the vicinity, who, but for this particular allurements to evil, might go on respectably."

Spruce-trees and Scots Fir and the like are what the same authority recommends as obviating the need of night-watching, and providing shelter for the birds. The pheasant may be tempted abroad in search of food, but I know for a fact that, as Mr. Tegetmeier says, "it seldom fails to return at night to its warm roost among the Spruces, and only with the advance of the spring will he quit it." On a windy night pheasants would be blown off Oak standards above coppice, to fall a prey to foxes and cats underneath. I wish Dr. Schlich would cite his authority for stating that it is generally recognised that the standards over coppice is the best covert for pheasants. This is the first time I have seen that asserted. The Spruce-mixed woods around Drumlanrig Castle, N.B. were the best pheasant-stocked woods I ever saw, mainly because they were warm in a cold district, and no artificial breeding was resorted to in my time.

In addition to the cold and shelterless condition of a wood consisting of standard over coppice, it has other faults about it equally bad, according to the gamekeeper. Standard over coppice is really the keeper's idea of a game preserve, barring the density and height of the coppice insisted on by Dr. Schlich, and his deciduous standards—the three essentials. At p. 13 of my book I state as much as this, as follows:—"A gamekeeper's idea of a wood is one adapted to his own notions. It must consist throughout of timber trees standing thinly on the ground, never to come down, sufficiently furnished with coppice or underwood for the shelter of his pheasants, but not so dense as to prevent himself or his beaters from facing the covert comfortably on a wet morning."

This kind of standard over coppice is much too common now, but the keeper's coppice consists not of Dr. Schlich's remunerative crop of underwood, but of a mixture including Rhododendrons, Hollies, and other evergreens; while the standards have to be of Spruce, singly or in groups, or of some tall evergreen tree suitable for roosting on, and valueless as timber. The coppice must also be low. The keeper's objection to tall coppice is well founded. Coppice, to be worth anything as a crop, must be from 20 to 30 feet high for either Hop-poles or crate-wood. Hop-poles have to be 20 feet high after cutting and sorting, and crate-wood must be very long and attenuated to be useful. A crop of either, therefore, grown on Dr. Schlich's plan, would form a complete block to the gun in pheasant-shooting, because it cannot be shot through nor over, as the tops are much above the angle at which the gun has to be held. The common pheasant does not tower, but flutters away at a low angle, and has usually to be covered by the gun over the top of the underwood.

Another question suggested by Dr. Schlich's proposals is—To what extent does he propose to adopt the standard and coppice system in extensive game preserves? He knows, I presume, that on all estates it is an imperative "rule" to have pheasants in every wood. If they are not there, naturally they have to be hatched and put there annually. This is one great plea for artificial breeding. Cold woods, consisting of deciduous trees and underwood, they will leave on the approach of cold weather; hence the annual distribution of the crops every August. Very well; this would involve standard over coppice on an almost universal scale, to the exclusion of other crops; and as coppice-wood can hardly be sold now to advantage, and the market is soon glutted, where are Dr. Schlich's sanguine financial returns to come from? Hitherto the hop-pole market has been relied upon, and that is now doomed, because hop-growers are now substituting permanent Larch posts and strings for the poles as fast as they can, and in a few years no poles will be needed. In most other directions, and especially in the north, coppice growing is at a discount.

The chapter on game preservation, in the *New Forestry*, was about the last chapter written, it having been suggested to me that the subject must be faced. I consulted many gentlemen, owners of game preserves, on the subject, and all had the same opinions. A quotation from one letter will suffice. The writer says: "I have discussed the subject often, when out shooting, and at dinner parties, and the objection to density in any form in pheasant coverts is general. The coverts must be warm, but open in some way, so that the birds can be seen." Another gentleman, acquainted with German forests, said to me: "It is impossible to see birds in German Fir woods, and you cannot shoot in a forest of fishing-rods"—referring to the dense young forests of Beech and Hornbeam, &c., which so much resembles English coppice. It was experience of this kind that made me suggest rides and

open glades as the only way out of a difficulty that standards over coppice will never solve.

This, I think, disposes of the system proposed by Dr. Schlich on the pheasant account. No one admires Dr. Schlich as an able and scientific forester more than I do, but his article in the *Gardeners' Chronicle* leaves the impression that he is not in touch with the subject of game preservation as at present conducted in British woods. I deal with the subject of pheasants in my book, in order to simplify the work of the keeper, in the event of the office of woodman and keeper being combined, and not because pheasant preservation was the chief objection to the forester. Rabbits are the problem. What is Dr. Schlich going to do with them? He says, very unjustly, that the forester is often as much to blame as the game-keeper, because he does not manage his woods in such a manner that they lend themselves to the preservation of game, and yet yield a revenue from timber and firewood. I join issue with your correspondent here, and ask him if he can name any general crops of timber, on any system, that can be raised successfully and profitably where rabbits are allowed to abound? How is he going to raise coppice of the very kinds of trees rabbits prefer, Ash, Beech, Oak, &c., if rabbits abound in sufficient numbers to devour the crop as fast as it grows (as they have done on many estates), with his hands tied in regard to the rabbits, and when the keeper's ideas as to what the standards and coppice shall consist of, and how they shall be grown are enforced? Who is to blame for the lack of a "revenue from timber and firewood" in that case? Wire-netting will probably be suggested in reply, but wire-netting fences of the right kind are objected to on account of their expense by proprietors, and objected to by keepers because they prevent the young pheasants from following their mothers, who get on one side of the fence, leaving the chicks on the other. I have known the netting round a whole plantation removed at the keeper's suggestion because the mesh was too small to let the young pheasants through; and a net that will do that is no use against rabbits whatever.

In short, foresters at the present time are just in the same position as tenant-farmers were before the Ground Game Act was passed. It was not their landlords that the tenants blamed so much as the gamekeepers. So bitter were the relations between the two on some estates that I have known the farmers openly threaten to put their foot on every pheasant and partridge nest they found on their land, which threat I believe was carried out. Such relations exist yet, for the Game Act is far from perfect, and keepers ignore it. Only a couple of weeks ago, in a case recorded in a Scottish agricultural paper, a head-keeper was heavily fined for felling a tenant with his stick because he was netting rabbits on his own farm that the keeper should have seen to. What, may I ask, are those German forest officers actually doing who are reorganising the woods on certain estates in regard to game? I do not hear of the coppice system being suggested, but that, as in the case of Mr. Monro's woods at Raith, now being laid out by Dr. Schlich, or some other forest officer, regular crops of timber are to be grown, and "game is to take a back seat." (*Transactions, Scottish A. S.*)

Dr. Schlich knows, I suppose, how much damage a few rabbits can do in a few nights, let alone in a whole winter. It is the one thing that staggers owners of woods after the coverts have been shot over to the end of the season, and every rabbit shot that could be seen, that the damage to trees and young plantations is still of the most wholesale description. I do not know of one single estate where anyone is allowed to interfere with the keeper except his employer, and the keeper will not destroy the rabbits in his woods if he can help it. If Dr. Schlich ever goes out with the gun, as I have sometimes done, he may know the reason. Breed pheasants as plentifully as you may, they do not afford continuous sport when the coverts are beaten. They run before the guns as a rule, and get up in flushes, tame-bred birds especially; hence, in a wood where there are no rabbits, the shots are far between, and it becomes monotonous; keepers fret, and owners of the coverts, wishing their guests to have good sport, become impatient. Permit rabbits in the woods, however, stop them out of their holes before shooting in the usual way, and shots are always popping up between the pheasants, which keeps the guns employed. This is the chief inducement to the keeper to keep rabbits in the woods, and the temptation to his employer to wink at his doing so. The pheasants need never be any great difficulty. They do not destroy the trees like rabbits, and the work of the woods could be arranged without disturbing the birds under a proper system. It is the rabbit plague that is meant whenever foresters either speak or write about game. It is the rabbit depredations in our woods that I have dealt most emphatically upon in the chapter that suggested Dr. Schlich's article, and the point that he has missed, and where his help would be most welcomed. One thing is certain, viz., that the standards over coppice system, while neither necessary nor even desirable for pheasants, nor prospectively a paying crop, will be found just as difficult to carry out as any other, whenever rabbits are allowed to exist in even moderate numbers, and keepers' ways are adhered to. *J. Simpson.*

PUBLICATIONS RECEIVED.—*The Art and Craft of Garden-making*, by Thomas H. Mawson. (London: Batsford, 94, High Holborn.) Quarto; numerous illustrations. We shall have to refer to this on another occasion.—*Bulletin de la Société Française d'Horticulture de Londres*, 1899 (66, Long Acre, London), opens with an admirable portrait of George Nicholson.—*Studies of American Grasses*, by F. Lamson Scribner and Elmer D. Merrill (United States Department of Agriculture).

FLORISTS' FLOWERS.

POLYANTHUSES.

It is interesting to note that the committee of the National Auricula Society have this year replaced Gold-laced Polyanthuses in their Drill Hall schedule. The last time classes for these once-favoured florists flowers appeared in the schedule, the exhibits were nearly all seedlings, and a very poor sample. It has not been our lot to see *Cheshire Favourite*, *Exile*, *William the Fourth*, and some other famous old varieties since the late Mr. Samuel Barlow ceased showing them. Probably few growers in the north have them at all; or if they have, the specimens are so weak and poor that flowers are indifferent, and hardly recognisable as of the true varieties, whether naturally of weak constitutions, or they have been weakened by so many years of constant division, and propagation as well as by the somewhat oddling methods adopted in their culture. Certainly the Gold-laced Polyanthus of to-day as found in the south is but a very feeble reproduction of those charming things Mr. Barlow used to bring to the Drill Hall from Manchester. After all it is very doubtful whether floriculture is for that reason much the poorer. Certainly in a perfect gold-laced flower there is much more of beauty than is seen by the ordinary observer. Flowers such as really good ones of *Exile* or *Cheshire Favourite*, with their black or red ground of perfect colour, their finely cut lacing that ran clean round each petal lobe and passed right through to meet the golden centre of the same clear bright hue, and the pleasingly formed cup with its cluster or nest of golden anthers, formed quite a model picture florally, and probably in true florists' correctness and conformation were excelled only by a good edged show Auricula. Some show varieties, doubtless due to climate, we never have been able to obtain with that perfect marking, and correct form, here in the south, that the Lancashire flowers obtained. This may be due to greater warmth at the flowering season, but it is far more likely that it resulted from the effects of summer heat on the leafage, favouring thrips and spider, and checking growth, troubles from which the northern plants are materially free. Certainly we shall look with interest to see what results from the re-introduced classes for three plants and one plant respectively, and we may hope to see some of the old favourites in good form once more. But I have always felt it to be unfortunate that the National Auricula executive has not striven to do something to help to evolve a fine florists' strain out of the fancy or border section of Polyanthuses. In these we have robustness, marvellous variety, liberal seed production, quick reproduction of plants from seed, even by tens of thousands if needed; and in many capital form, habit, and markings, such as would admit by careful and constant selection of great improvement on florists' lines, and in that way not only enable a perfect show strain to be produced, but also to greatly improve the existing border strains, which, good as they may be, will still admit of material development. It does seem as if the Auricula florist looked rather askance at this section of the Polyanthus.

True, the committee furnishes a class for a dozen plants in pots, and equally a class for Primroses, the ordinary observer at least, if none other, being terribly puzzled to tell where the one ends and the other begins. One good the florist would do to the strain by the rigid process of selection would be to stiffen the flower stems. That is an improvement badly needed. Out of a thousand plants perhaps twenty of them show that characteristic wall, but far too many of the rest are neither Primroses or Polyanthuses, but intermediates. The great charm of a good Polyanthus is found in having stout erect flower-stems, that carry good clusters or rounded heads of flowers, also on stiff stalks. Then the pipe should be of good size, but not necessarily large. Some growers pride themselves on having huge

flowers literally as large as a crown-piece. These big blooms it is invariably found, are borne on long and weak stems, so that the heads wear a demoralised aspect. The florist would not care for these, because they would lack quality. These pipes should also be smooth-edged, flat, and perfectly round. If self, no matter whether white, yellow, orange, or any deep colour, that ground colour should be clear and the inside filled. The eye should be lemon or yellow, and not of a dirty buff, such as is found in so many flowers, or is almost obliterated because the ground runs into the cup; a thrum or anther filled centre is much better than is one which shows a prominent pistil or pin-headed style. The thrum flower always has naturally furnished a basin or cup centre in which the anthers naturally rest. The pin-flower has a tubular throat throughout, and no cup; indeed it closely resembles in all but colour, a sweep's-broom projecting from a chimney-pot. Lovers of spring flowers, Polyanthus especially, may find delightful work in constantly raising and selecting of the very best, until finally they are rewarded by securing an almost perfect strain. A. D.

SOCIETIES.

ROYAL HORTICULTURAL. Scientific Committee.

APRIL 10.—Present: Dr. M. T. Masters (in the chair), Dr. Müller, Rev. W. Wilks, Mr. E. Im Thurn, Mr. Hudson, and Rev. G. Henslow (Hon. Sec.).

Vine leaves diseased.—With reference to the samples brought to a previous meeting from Gunnersbury, Dr. Masters observed, from further examination, that they were certainly not attacked by red-spider, but possibly by mites. There was still some doubt as to the presence of the young condition of *Glaspiorium*.

Orange striped.—With reference to the Orange brought to a previous meeting, Dr. Bonavia writes further in regard to the criticism on his theory that the stripe did not correspond to a single carpel, but covered halves of two:—"If this be so, I think that fact would seem rather to strengthen my theory, for the law of phyllotaxis (alternation of whorls) would appear to require such a disposition. My view is that the peel and the pulp with carpels are two independent whorls, the former coalescing to form a protective covering, while the latter has its carpels separable." The difficulty in accepting this theory arises from the fact that there is no mark of separation, the spongy tissue being continuous from the ovary cells to the circumference, the latter being charged with oil glands. Secondly, if the superficial layer were "foliar" one would look for fibro-vascular cords running through it, whereas there are none. All that are present permeate the soft tissue. Lastly, if it were foliar it must represent a whorl of stamens; but where such a whorl takes on a platilute character, they form short horn-like processes around the base only, and not a uniform covering.

Mandarin Oranges striped.—Mr. Hudson brought some fruit which always has slightly raised ridges, on a line with the backs of some of the carpels, and green. They proved to be quite superficial, only retaining the chlorophyll grains, which had disappeared elsewhere.

Acorn with Three Embryos.—Mr. Saville, of Maplestead, Essex, on growing an acorn in water, found that it sent up three stems. They proved to arise from three distinct embryos within the common husk. Such polyembryonic conditions occasionally, but not very frequently, occur.

Douglas Fir Diseased.—Dr. Smith reports on the specimen sent to him that it is attacked by *Phoma pithya*, but will add fuller details hereafter.

Potatoes Diseased with scab, &c.—Dr. Smith also reports on samples received from Mr. Escombe, Penaburst, Tunbridge, in August, 1899. Prolonged cultivation of the fungi showed several species, that it was difficult to detect, which was the primary cause of the disease. "The skin of the Potatoes bore two distinct forms of disease. (1) scab, the cause of which is not yet known; (2) dark brown bodies adhering to the skin, called *Rhizoctonia solani*, being a mycelium of some unknown fungus. Other fungi present appeared to be *Potato dry rot* (*Fusarium solani*) and the *Potato mildew* (*Phytophthora infestans*)." Dr. Smith proposes to continue the culture, and to add a further report hereafter. Mr. Hudson observed that scab frequently appears on Potatoes when pig manure has been added to the ground. Such would appear favourable to the fungus which causes it.

LINNEAN.

APRIL 5.—Mr. C. B. CLARKE, F.R.S., Vice-President, in the chair.

Mr. W. B. HEMSLEY, F.R.S., F.L.S., exhibited and made remarks on a selection of plants collected by Dr. A. Henry

and Mr. W. Hancock in the neighbourhood of Mengtze and Ssemao in Western China.

Dr. D. H. SCOTT, F.R.S., read a paper on "Sphenophyllum and its Allies, an Extinct Division of the Vascular Cryptogams. The author explained that his purpose was not to communicate any new observations, but to give a summary of our present knowledge of the group and to discuss its affinities. He pointed out that the study of the Palaeozoic flora not only greatly widens our conception of the three existing classes of Pteridophyta, but adds a fourth—that of the Sphenophyllales—to their number.

The various views which have been held as to affinities of the Sphenophyllales were then discussed in the light of the results recently attained. The supposed relation to Hydropterides, though supported by some ingenious arguments, was rejected as baseless, and as inconsistent with the manifest Filicenean affinities of that family.

The author came to the conclusion that the Sphenophyllales were most naturally regarded as the derivatives of a synthetic group, combining the characters of Lycopods and Equisetales, and indicating the common origin of those two classes.

MANCHESTER ROYAL BOTANICAL AND MANCHESTER ORCHID.

Combined Show.

APRIL 10, 11.—The Manchester Spring Show, held on the above dates, brought together a very fine display of plants. The Town Hall, in which the show has been held for many years, is not quite the best place that might be used for this exhibition, and possibly the Council will take steps to hold future shows in a more frequented portion of the city.

There were a number of beautiful and interesting groups of Orchids; and taking the amateurs first, there can be no doubt that the group *par excellence* was that staged by W. THOMPSON, Esq., Stone, Staffs (gr., Mr. Stevens). This group consisted chiefly of *Odontoglossums*. The plants, even if devoid of flower, would be worth admiration, but surmounted as they were by fine sprays of blossoms of all shades they created a fine effect. In the group were fine varieties of the various species now flowering, viz., *O. crispum*, *O. triumphans*, *O. luteo-purpureum*, *O. Pescatorei*, *O. Rossi majus*, &c. While towering above these, and interspersed throughout the group, were about half-a-dozen magnificent plants of *Oncidium sarcodes*. A few notable plants were shown for the first time in this country, and were the centre of great attraction. *O. crispum* "The Earl" was the finest, being a splendid bold flower 3½ inches across, and of fine shape. The markings are of pale chocolate-brown, and nearly as large as a sixpence on each segment; this large blotch being surrounded plentifully with smaller markings of the same colour. The next best in the group was *O. crispum* "Victoria Regina," quite a different style of thing, being not so massive, the flowers are of ordinary size, and prettily fringed round the margins of the sepals and petals, while the surface of the flower showed an abundance of bright rosy markings.

JOSEPH BROOMS, Esq., Llandudno, sent a collection of hardy flowers now blooming in N. Wales, *Doronicums*, *Primulas*, *Anemones*, *Chelanthus*, &c.

J. LEEMANN, Esq., Heaton Mersey (gr., Mr. Edge), staged a handsome group of plants in which was a glorious example of *Dendrobium* × *Venus*, a specimen bearing upwards of 200 brilliant blossoms. *Zygopetalum Perenoudi* was another handsome plant shown in this group, the brightness of the blue in the lip of this flower was very effective.

E. H. SEDDON, Esq., Brooklands (gr., Mr. Milne) displayed a worthy group of plants. Mr. Seddon has only been a cultivator for two years, and should eventually take an important position in the North of England as an exhibitor. His group included some excellent plants of *Dendrobium Wardianum*. There were also some choice forms of *D. nobile*, *Cattleyas*, &c.

T. BAXTER, Esq., Morecambe (gr., Mr. Roberts), staged a nice group of *Odontoglossums*, several nice forms of *O. Alexandræ* being among the group, as well as good varieties of *O. Andersonianum*, *O. Halli*, &c.

O. O. WRIGLEY, Esq., Buyl, Lancashire (gr., Mr. Rogers), displayed a collection of choice blooms of *Cypripediums*, *Dendrobiums*, *Cattleyas*, &c., and from the same garden came a grand collection of *Clivias*. The *Clivia* is Mr. Wrigley's special favourite, and by careful cross breeding he has obtained one of the finest strain of *Clivia* (*Imantophyllum*) *miniata* yet seen. The varieties are remarkable for the perfect symmetry of their flowers, and their richness of colouring.

The Earl of ELLSMERE, Worsley (gr., Mr. Upjohn), exhibited a pretty basket of *Primula Forsskii*, rosy-pink, the flowers borne in whorls, as in *P. verticillata*. This makes a very charming small decorative plant.

W. DUCKWORTH, Esq., Shaw Hall, Flixton, staged a most beautiful variety of *Dendrobium* × *Sybil*, being very large and richly coloured.

G. SHORLAND BALL, Esq., had *Odontoglossum crispum*—*Harryana*.

E. O. SCHNEIDER, Esq., Whalley Range (gr., Mr. Hunt), exhibited a fine plant of *Dendrobium thyrsiflorum* with sixty-one spikes of flower; they were not all fully developed, but the plant made a good effect. The trade made a very fine display of Orchids. Mr. J. CYPHER, of Cheltenham, staged a group which occupied 40 feet run of tabling; and the whole appeared a huge forest of Orchid blossoms. Mr. J. ROBSON, Altrincham, had also a fine group of Orchids, in which *Dendrobiums* were prominent. Messrs. CHARLESWORTH & CO., Bradford, had an excellent exhibit;

Cattleya Schroderæ var. *Prince Patrick* is a pretty form, with pure white sepals and petals and coloured lip. There was a good variety of *Cattleya Schroderæ* alba, and a fine *Odontoglossum crispum*, called *Duke of Connaught*, very richly marked with rich chocolate markings. The group further contained some good plants of *Phaius Cooksoni*, *Cymbidium eburneo-Lowi*, and a rare little thing in *Odontoglossum retusum*, with orange-scarlet blossoms.

Messrs. HUGH LOW & CO., Bush Hill Park, staged a small but very choice group of plants, a number of which were charming *Cattleyas*. *Cattleya Trianae* Empress of India is a beautiful form with good shapely flowers, pure white in the segments with a coloured lip. *Cattleya speciosissima* Lowie has a massive flower, of pale pink colour, with a fine labellum of the same colour, veined with rosy-crimson markings.

Messrs. F. SANDER & CO., St. Albans, had a magnificent *Odontoglossum crispum*, "Mrs. F. Sander," one of the gems of the show. It is quite distinct, and has intense markings of reddish-brown, the spots being small, but very numerous.

Messrs. BACKHOUSE & SON, Ltd., York, staged a few good Orchids, principally *Cattleyas*.

Mr. A. J. KEELING had a nice group, the best plant in which was *Laelia Jongheana* var. *Keelingæ*, the finest form yet seen.

Messrs. KER & SON, Aigburth Nurseries, Liverpool, staged a grand lot of *Amaryllis*, which seem to improve yearly. A few of the finest varieties were *Mercury*, orange-scarlet, with white centre; *Midas*, almost pure white, with red pencillings on four of the segments, the remaining two being free from this marking; *Sappho*, a particularly fine variety, being a rich maroon-crimson, almost black; and *Venus*, having a rosy ground, and white pencillings. Altogether about fifty varieties were displayed.

Messrs. DICKSONS, Ltd., Chester, staged a group of greenhouse plants, *Liliums*, *Azaleas*, *Statice*, *Genistas*, &c. P. W.

Awards made by the Orchid Society

FIRST-CLASS CERTIFICATES.

Cattleya Empress of India, *C. speciosissima* Lowie—H. Low & Co. *Odontoglossum excellens* var. *luteum*, *O. crispum* *Victoria Regina*—W. Thompson, Esq. *O. Mrs. F. Sander*, *O. elegans* St. Albans var.—F. Sander & Co. *O. nebulosum* album—Messrs. Charlesworth & Co. *Dendrobium Sybil superbum*—W. Duckworth, Esq. *Laelia Jongheana Keelingæ*, *Cypripedium selligerum majus* Drewett's var.—A. J. Keeling.

AWARDS OF MERIT.

Dendrobium rubens magnificum, *Sophronites grandiflora gigantea*—Mr. J. Cypher. *Cattleya Schroderæ*—E. H. Seddon, Esq. *C. cereulescens*—H. Low & Co. *C. Schroderæ* albolutea, *Cypripedium Seeding callosum* × *bellatulum*—J. Leemann, Esq. *Cattleya Schroderæ* alba, and *O. S. Prince Patrick*—Charlesworth & Co. *Odontoglossum cuspidatum nobilissimum*—F. Sander & Co. *O. crispum*—T. Baxter, Esq.

MEDALS.

Silver Gilt to J. Robson, Esq., for group; E. Seddon, Esq., for group; J. Leemann, Esq., for group; W. Thompson, Esq., for group; Charlesworth & Co., for group. Also to *Odontoglossum crispum* "The Earl," from W. Thompson, Esq.; Silver Medal to *Odontoglossum crispum* "Mrs. F. Sander," from Messrs. F. Sander & Co.; and to *Dendrobium* × *Venus grandiflora*, from J. Leemann, Esq.

Awards made by the Botanical Society.

Silver Medal to H. Low & Co. for Orchids; Gold Medal to R. Ker & Son for *Amaryllis*; Silver Medal to O. O. Wrigley, Esq., for *Clivias*; Silver Medal to E. H. Seddon, Esq., for Orchids; Gold Medal to W. Thompson, Esq., for Orchids; Gold Medal to J. Leemann, Esq., for Orchids; Gold Medal to Charlesworth & Co., for Orchids; Large Gold Medal to J. Cypher, Esq., for Orchids; Silver Medal to T. Baxter, Esq., for Orchids; and Gold Medal to J. Robson, Esq., for Orchids.

ROYAL BOTANIC.

APRIL 11.—The spring exhibition of this society was held on the above date, the exhibits were partly in the long corridor (which was a blaze of bloom), and partly in the spacious conservatory.

In the competitive classes two very fine collections of twenty-four *Cyclamens* were staged by the CHURCH ROAD NURSERY COMPANY, and the ST. GEORGE'S NURSERY COMPANY of Hanwell, the former gaining the 1st prize. *Hyacinths* and *Tulips* were somewhat indifferent, compared with what used to be seen twenty-five years ago. There were some nice little bushes of *Azalea indica* and *A. mollis*, but alpine *Auriculas*, with the exception of that brilliant variety, *Dean Hole*, were very poor.

Fine and varied trade exhibits made up for other defects. Messrs. WILLIAM PAUL & SON had *Camellias*, plants and cut blooms, and various forced plants; Messrs. B. S. WILLIAMS & SONS had a group of *Clivias* and other plants of notable character; Messrs. J. HILL & CO., one of those remarkable collections of Ferns they are in the habit of staging at this season of the year; Messrs. J. LAING & SONS, J. PEED & SON, and W. CROFTON & SON, all had collections of flowering and fo-taged plants of varied character, which greatly assisted the general attraction; Messrs. R. & G. CURBERT and J. RUSSELL had collections of *Azalea mollis*; Messrs. BARR & SONS, *Dafoedils* in great variety. Awards of Medals were made to all the foregoing. The gardens of the Society are now very attractive. The show was mainly made up of the exhibits staged at the R.H.S. on the previous day.

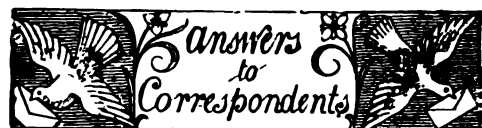


METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period April 8 to April 14, 1900. Height above sea-level 24 feet.

1900.		DIRECTION OF WIND.	TEMPERATURE OF THE AIR.						RAINFALL.	TEMPERATURE OF THE SOIL AT 9 A.M.			LOWEST TEMPERATURE ON GRASS.
APRIL 8 TO APRIL 14.	AT 9 A.M.		DAY.		NIGHT.		At 1-foot deep.	At 2-foot deep.		At 4-foot deep.			
	Dry Bulb.		Wet Bulb.	Highest.	Lowest.								
SUN. 8	N.N.E.	deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.			
MON. 9	E.S.E.	42.2	30.4	47.0	37.2	...	43.2	43.6	43.9	32.5			
TUES. 10	W.S.W.	50.3	37.8	54.8	29.8	0.01	42.2	43.6	43.9	22.6			
WED. 11	W.S.W.	53.7	44.3	55.5	37.8	0.10	43.8	43.6	44.1	27.6			
THU. 12	W.S.W.	53.7	49.9	57.5	42.9	0.06	45.5	44.2	44.2	39.1			
FRI. 13	W.S.W.	51.8	45.6	57.2	44.9	...	46.7	44.9	44.3	37.9			
SAT. 14	W.S.W.	51.5	43.8	58.2	46.6	...	47.9	45.5	44.5	40.4			
MEANS...	...	49.9	47.2	63.4	41.9	...	47.4	46.2	44.9	33.2			
						Tot.							
		48.2	44.0	56.2	40.2	0.17	45.2	44.5	44.3	33.3			

Remarks.—The weather during the week has been generally dull with south-westerly gales, which were unusually strong on the 13th inst.

ROYAL BOTANIC SOCIETY.—A course of lectures on Soils, Manures, Seeds and Seed Testing, will be given by D. FINLAYSON, F.L.S., in the Museum, on Friday afternoons, at 4 P.M., commencing April 27. Particulars can be obtained of the secretary, Mr. J. BRYANT SOWERBY, F.L.S., Royal Botanic Gardens, Inner Circle, Regent's Park, London, N.W.



AMARYLLIS EQUESTRIS: N. Y. Z. We think that inability of the bulbs to flower is due to too many attached off-sets being allowed to remain on the bulbs, and to over-much drying off, *A. equestris* being a nearly evergreen species.

BOOKS: F. W. The new edition of Thompson's *Gardeners' Assistant*, by Blackie & Sons, Ltd., Glasgow and London, the publication of which is promised shortly; failing that work, choose *My Gardener*, by H. W. Ward (Eyre & Spottiswoode, East Harding Street, E.C. Agricultural hand-books might include *The Book of the Dairy*, by Aikman and Wright, published by Blackie & Sons, Ltd.; *Management of Grassland*, by Arthur Roland, published by Chapman & Hall, 11, Henrietta Street, London, W.C.; *Artificial Manures*, by Ville, published by Longmans & Co.; *How Crops Grow*, by S. W. Johnson, published by Orange Judd & Co., New York, and to be picked up at the old-book shops here.

CHRYSANTHEMUMS: H. C. Chrysanthemums generally show three buds during their growth. The first occurs soon after the middle of April, and may be known as the first break or first crown bud; the second, or proper crown bud, about August; and the third, known as the "terminal," in September. You will find illustrations of the crown and terminal buds in the *Gardeners' Chronicle* August 29, 1896, p. 249, and Sept. 12, 1896, p. 309. When a crown bud is "taken" or selected to produce a flower, it is necessary to remove the growth buds from around it, as under natural conditions this crown flower-bud would not develop. In the case of a terminal bud the circumstances are different. The shoot has completed its growth, and all buds formed around

the terminal one will also be flower-buds, and must be removed, if the terminal one is to become the largest size possible. We cannot advise you as to the best bud to select in the case of each variety, as this would take too much space, but you can find out for yourself by experience; or you may follow directions given in the books that exist on the cultivation of the Chrysanthemum, and in several of the nurserymen's catalogues. There is much information upon the subject in the two issues of the *Gardeners' Chronicle* above referred to.

CROCUS CORNS WITH ENLARGED ROOTS: J. P. This appearance on Crocus-corns is common, it is an extra store of nutriment for the use of the plant, and doubtless disappears after it has served its purpose.

CUCUMBER PLANTS DYING: Randall. This sudden flagging of indoor Cucumbers is not uncommon, especially where they are being forced. In the plant sent there seems to have been a check in the root-action, the cause of which is not evident. It is known to be caused by eel-worms (nematodes), but we cannot find these either on the roots or in the soil sent. There is abundant evidence of fungi on roots kept a few days in a moist chamber. This might be the cause of trouble; yet it would be a hasty conclusion without further investigations. The roots may easily have been checked in many ways. For instance, we know a case where young Vines were injured by water drawn from pipes supplied from a boiler in which chemicals were used to prevent crust formation. Is there no chance of the liquid manure causing damage? We are more inclined to ascribe your trouble to some such source as this, rather than to fungus or animal agency. W. G. S., Leeds.

FLOWER SHOW SCHEDULES: W. A. Trillium is not a bulb according to our reading of the Schedule, and had we been among the judges we should have disqualified any one showing a Trillium in that class.

GOOSEBERRIES: Constant Reader. Among the very best of dessert varieties may be mentioned the old Red Warrington, Yellow Champagne, Green Gascoigne, Bright Venus (yellow), Green Walnut, and Whitesmith.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—H. S., Messrs. A. & McC. *Arisema ringens*.—E. C. *Dendrobium cariniferum*.—Mrs. J. The *Dendrobium* is a very fine variety. We have seen a similar form named *D. nobile giganteum*.—Musci. A. *Polytrichum juniperinum*, male plant.—B. *Bryum capillare*.—W. M. 1, *Pulmonaria officinalis*; 2, *Erythronium dens-canis*; 3, *Arum dracunculoides*—if hardy; 4, *Sequoia sempervirens* (Red-wood).—W. C. *Cymbidium aloefolium*.—C. W., Pinner. The flowers are of the ordinary form of *Dendrobium Wardianum*, but the plant seems to have received a check in some way, which has interfered with their perfect development.—F. A. L. *Staphylea colchica*.—Constant Subscriber. It is *Cypripedium hirsutissimum*, an Indian species, and totally distinct from *Selenipedium Schlimi*, for which you state that you bought it.—E. F. The single flower is *Dendrobium crepidatum*; the raceme *Dendrobium thyrsiflorum*; the other, *Begonia*, *Lanabergi*.—W. W. L. We cannot undertake to name varieties of Carnations or other florist flowers.

NARCISSUS DISEASED: H. J. S. If you examine the bulb-scales, they will be found to be rough, and scabbed in appearance. These scales are the resting-stage of a fungus, and after being kept moist for three days, we found them to give off an abundant fungus growth. From this and other symptoms, we think the disease is similar to the one which attacks Tulips, Lilliums, and other bulbous plants, and known as *Botrytis* disease. The fungus can also be detected in the fresh leaves, thus the weakness of the growths is accounted for. The fungus probably reached the bulbs from the soil, where it lives on decaying vegetable matter. It is unlikely that the present set of bulbs can be saved. Try a new lot in some other part of the garden, using plenty of sand and the ashes of burnt garden and other refuse; no fresh manures should be put near the bulbs, except artificials if necessary. As a preventive a light top-dressing of green

vitriol (sulphate of iron), mixed with soot or fine coal-ashes may be applied occasionally. We believe the preparation sold as "Veltha" has the same effect, and is a good preventive against diseases like this. W. G. S., Leeds.

NOTICE TO QUIT SERVICE: W. K. L. No written notice to quit having been given, the gardener is justified in going at the expiration of a month, and should be paid a month's wages if he stay that length of time. You will lose your case, probably, if you sue him for a fortnight's wages, although the master in reality gave you six weeks' notice to quit his service.

PARADISE APPLE-STOCKS: D. S. It is getting late for planting, still these stocks may be met with in north-country nurseries, and may be purchased at a cheap price if large quantities are taken. You should advertise your wants, or scan our advertisement columns.

RED-SPIDER ON PEACH-TREES: J. P. Syringing with water will clear the Peach-tree of red-spider if it be done twice a day, the stream of water from the syringe being directed from right and from left, so as to leave no part of the leaves unwetted. If spider be very prevalent, it might be advisable to use in conjunction with syringing the XL-All liquid, taking the precaution to have the foliage dry when vaporising the peachery.

RHUBARB DAW'S CHAMPION: Constant Reader. Mr. W. Poupart, Twickenham, exhibited this variety. You had better address that gentleman.

ROSE MARÉCHAL NIEL: J. B., Park Lane. Over-feeding might cause the injury to the blossoms, just as it does in Chrysanthemums and many other plants. The variety *Maréchal Niel* is more susceptible to injury than most others, and in this case it may possibly be due to inefficient ventilation. In the cultivation of Roses under glass, ventilation is a matter that needs the exercise of considerable care, because the atmosphere should be kept buoyant and pure; and at the same time there must be no cold draughts upon the plants, or mildew and other pests will soon appear.

STRAWBERRIES: Berry. The imperfectly-shaped fruits arise from imperfect fertilisation.

SUCKERS ON THE ROOTS OF THE PEACH: Morra. Suckers are natural to the Plum, which is the usual Peach-stock in this country. In the case of your trees, the suckers have been cut off annually at the surface of the soil, instead of being traced down to the roots from which they spring, and cut off with a knife close to the roots. The over-production or retention of suckers tends to lessen the annual growth of the branches.

VINE DISEASED: H. W. This looks like an attack by the fungus *Sclerotinia Fuckeliana*, but the parts sent are not quite conclusive. The disease was described in this journal along with other Vine diseases in 1894 (vol. xvi.). Other useful articles on the subject are one on leaf-clubbing (vol. xvi., 1894, p. 136), and another on some Vine diseases (vol. xxv., 1899, pp. 17 and 98). The fact that one Vine is diseased while its neighbour remains healthy, indicates something wrong with the sickly one; it should be carefully examined above and below ground. G. S. W., Leeds.

WOODLICE AND ANTS: F. S. See our next issue, for methods of trapping and destroying the first, and as the ants do not seem "to care for" the treacle baits, probably it would prove more destructive if you were to put a flower-pot bottom uppermost over the saucers, sinking both in the ground, so as to have the pot level with the surface. Ants are inquisitive creatures, and many are sure to want to explore the hole they perceive in the pot, with the result that they will be caught, there being no return possible.

COMMUNICATIONS RECEIVED.—W. A. J.—B. W.—W. C. A. W.—A. K. B.—D. T. F.—A. O'N.—W. T., Aragoir.—E. J.—G. N.—A. H.—W. G.—T. B.—R. D.—G. H.—W. S., Coopers Hill.—P. Stcherbina.—D. B. W.—T. M., Philadelphia.—W. H. M., Santa Barbara, Cal.—J. O'B.—R. A. R.—Max Binder, Roumania.—Dr. W. G. S.—L. C.—W. R.—J. S.—H. W.—W. S.—W. M.—J. B. F.—F. D.—G. N.—H. J. E.—Dr. Glig, Berlin.—W. P. B.—A. J. R.—J. B., Wilts.—J. B.—H. F. McM.—H. K.—J. M.—W. H. H.—P. F.

(For Markets, see p. xii.)



THE Gardeners' Chronicle

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BRITISH FORESTRY.

II.—PURE WOODS OR MIXED WOODS?

THE question whether to grow woods consisting of one species only, or woods containing two or more species intermixed, presents itself to every proprietor and forester in this country. Tastes, as well as considerations based on economic grounds, differ much on this subject, and it seems to me worth while enquiring in which cases and under what conditions the one or other class of wood is indicated.

As to the question of taste, it is impossible to evolve any rule. Some proprietors prefer pure, others mixed woods. If we ask Nature, the answer will no doubt be, that in by far the majority of cases, mixed woods are the rule, though the species may be arranged in groups of greater or smaller extent, according to the character of the locality, and the requirements of the several species. Personally, I follow Nature. I must, moreover, add that many woods in this country, which are believed to be natural, are nothing of the kind. I may even go so far as to say that there is, perhaps, not a single wood in England which does not owe its present condition to interference by the act of man, not even the so-called natural woods in the New Forest and in Epping Forest, about which so much has been written. As they appear to us now, they are the result, if not of actual sowing or planting, of the cutting-out of certain species which Nature had introduced, of coppicing, pollarding, and any other,

violent inference, not to omit the effects of cattle-grazing and fire.

Proceeding now to the economic aspect of the matter under consideration, the case may be shortly stated thus:—The object in view should be to manage woodlands so as to secure, *permanently*, the best possible results, whether measured by quantity and quality of produce, or by net cash receipts, or the interest which the invested capital yields. I have laid stress on the word "*permanent*." No doubt a proprietor can, for a certain period of time, realise large returns from his woods; but in doing so he may seriously injure the future yield-capacity of the land. In my opinion returns are legitimate only if by their realisation the property is not reduced in value, as measured by its yield-capacity. On thoroughly fertile soil, and under a favourable climate, the danger is, perhaps, not great; but where such conditions do not exist, and this occurs in the majority of cases, at any rate so far as the soil is concerned, woodlands should be stocked with such species, and treated in such a manner that the yield-capacity of the locality is not reduced. On the contrary, it should in many cases be improved. And thus we arrive at the question whether pure or mixed woods are indicated, and in the latter case, how they should be arranged.

The beneficial effect of a full crop of trees upon the soil are brought about chiefly by the following two agencies:—

(1.) The trees form a dense leaf-canopy, which protects the soil against the effects of the sun and air currents.

(2.) The fallen leaves, and certain plants which grow in the shade of trees, such as mosses, form a layer of humus, which covers the mineral soil.

These two agencies secure to the soil fertility, and above all, a permanent supply of moisture, without which no crop of trees can thoroughly flourish. Whenever the above two conditions are fully secured, the yield capacity of the soil is maintained, and in many cases improved. Hence, the answer to the question before us runs thus:—

"Only trees which have a fairly full foliage, and preserve a good leaf-canopy to an advanced age, are fit to be raised in pure woods. Species which do not possess these qualities should be mixed with trees of the former kind."

Accordingly, foresters arrange the trees grown for economic purposes into two classes. Into the first class of trees fit to be grown in pure woods belong the Beech, Hornbeam, Silver Fir, Spruce, and in a less degree Sycamore, Weymouth Pine, and Douglas Fir. To the second class of trees belong Larch, Birch, Poplar, Ash, Oak, and Sweet Chestnut. Half way between the two classes stand Scotch, Austrian, and Corsican Pine, inasmuch as they benefit the soil up to a certain age, say to forty or fifty years, after which they begin to thin out and join the second class. As a rule, the trees of the first category are shade-bearing, whereas those of the second class are light-demanding, in addition to being thin crowned. It so happens, however, that the second class comprises the most valuable timber trees, more particularly Oak, Ash, and Larch; hence, mixed woods in which these species form a prominent feature, are indicated in Britain, in preference to pure woods.

The next question is, how should such mixtures be arranged? I fear that no proper answer has been given to it by many British foresters during the last two generations. Instead of following the good old plan and the ordinary laws of Nature, as exhibited by older woodlands, modern foresters conceived the idea of cramming together on the same area about as many species as they could think of. Light-demanding and shade-bearing, quick-growing and slow-growing, spreading and conically-shaped, tender and hardy, Conifers and hardwood, have been mixed together anyhow, without any reference to the habits and requirements of the several species in mixture. The natural consequence has been, that the more aggressive

species, especially Conifers, such as Larch, Scotch Pine, and Spruce, took the lead, and being frequently unchecked by the hand of the forester, ousted the better kinds of hardwood, and more particularly the Oak. Only too many plantations of this kind can be seen in the south of England, as well as in the Midland counties, where the trees, which were originally meant to serve as nurseries for valuable hardwoods, have actually killed the latter, or crippled them to such an extent that they have become useless. "The nurse has devoured the baby." It is indeed time that we return to more simple methods, that is to say, to mix only species which are in every way suited to each other, and to mix and treat them so that each has a chance of fulfilling the object for which it is reared.

If one species is merely to serve as a nurse for the other, the former must be cut out just at the moment when the welfare of the permanent species demands it. This rule is simple enough; but there is one more point to which I must draw special attention, namely, the permanent species must be sufficiently numerous to form a full crop when the nurseries have been removed. I have seen many instances where the former only represented from 10 to 15 per cent. of the total number of plants, whereas the nurseries amounted to 85 or 90 per cent. What was the result? When the nurseries were cut out, there remained a thin, straggling crop of hardwoods, not sufficient to make a wood by themselves, and they were cut away with the nurseries, to make way for a new crop. Such a procedure is without sense, and involves useless expenditure. In these mixtures, the principal species should represent about half the crop from the commencement.

The arrangement of more permanent mixtures requires still more care, since it depends on the relative height growth, the light, requirement and shape of the species in mixtures. Hence, it is of the utmost importance to restrict mixtures to as few species as possible. Pure woods are easier to manage than mixed woods; mixtures of two easier than mixtures of three or more. It is far better to mix two species on half the area, and two others on the second half, than to mix four species over the whole area.

In summing up, we arrive at the following simple rules:—

(1.) Only species which are capable of preserving the yield-capacity of the locality may be raised in pure woods.

(2.) In the case of mixed woods, one of the species in mixture must be soil-improving, and it should be more numerous than the others.

(3.) As a rule, not more than two, and certainly not more than three, species should be mixed on the same area, unless each species is placed into separate groups, representing a series of small pure woods.

(4.) Shade-bearing species may be mixed with each other, provided their rate of height growth is the same, or the slower-growing can be effectually protected against the other, either by giving it a start, or cutting away the threatening individuals of the faster-growing species.

(5.) Shade-bearing and light-demanding species may be mixed, if the latter are faster growing, or given a start.

(6.) Light-demanding species should not be mixed with each other, except under exceptional conditions, such as the following:—

(a) In very fertile localities.

(b) In very inferior localities where nothing else will grow.

(c) If the mixture is a temporary one, as in the case of nurseries grown to protect a tender species during early growth; or if the wood is treated under a very short rotation, as for instance where pit timber only is grown.

(7.) Whether the mixture should be arranged by single trees, or whether each species is to form separate groups, depends on circumstances, especially the relative height growth, and the

shapes of the species in mixture. Where these differ, groups are indicated, a system which has of late years much grown in favour with foresters.

In my next article I propose to apply what has been said above, to the rearing of some of our principal timber trees. *W. Schlich, Cooper's Hill, April 10, 1900.*

ORCHID NOTES AND GLEANINGS.

"XENIA ORCHIDACEA."

THE tenth part of the third volume of this series of plates and descriptions of Orchids, begun by Reichenbach, and continued by Kränzlin, has just been published; and as we learn from the preface, no more will be issued. Among the new species here described are *Pleurothallis regis Alberti*, from New Caledonia; *P. Hartwegiaefolia* and *P. acutangula*, Wendland and Kränzlin; *Platyclinis bistorta*, *Hexasea tenuissima*, *Ceonia Brauniana* of the same authors. A general index to the three volumes has been supplied. A coloured figure of *Epistephium regis Alberti* is given, as well as one of *Lycaste costata*, *Sophranitis militaris*, and *Pogonia macrantha*. The species of *Pleurothallis* described are not likely to be very attractive to gardeners.

AN ABNORMAL ODONTOGLOSSUM CRISPUM.

A flower of what might on a cursory glance be taken for a new species of *Odontoglossum* is kindly sent by M. Florent Claes, Etterbeek, Brussels. A close inspection, however, proves it to be a remarkable abnormal form of *O. crispum*, in which the blades of every segment are undeveloped, the sepals, petals, and lip being merely represented by the lanceolate middle portions of these parts of the flower, none being much more than an eighth of an inch wide in the case of the sepals and petals, and a quarter of an inch in that of the lip. The petals are extended and curved upwards at the tips, and the only evidence of abnormal structure is that the column is broader and less curved than in normal forms. In colour it is white, with a rose-flush at the backs of the sepals and petals, the narrow lip and the column having a few reddish markings. An evolutionist might consider it to be a reversion to what *O. crispum* looked like when the world was younger than it is now. It is all the more interesting because two correspondents have lately sent flowers almost intermediate between the small, narrow-petalled form sent by Mr. Claes and the nearest type of *O. crispum*, known in gardens as the "starry" form.

ANSELLIA GIGANTEA, Hooker.

A fine inflorescence of this handsome Natal and Eastern African species has been sent by Messrs. Fisher, Son & Sibray, Royal Nurseries, Handsworth, Sheffield. The late Professor Reichenbach named it *Ansellia africana lutea*, and it is also known as *A. natalensis*. The flowers seem in regard to their colour to be very different to the western African typical species; and although the eastern form varies much in point of size according to the locality, the colouring is always different from that of the old *A. africana*. The flowers of the inflorescence sent are over 2 inches in width, of a primrose-yellow colour, the sepals and petals having a number of small brownish-red spots, the lip of a yellow colour, with purple veining on the side-lobes. The plant is ornamental, and when in flower very showy. *J. O'Brien.*

HOW TO DESTROY WOODLICE IN FORCING-HOUSES.

FROM time to time the Editor of the *Gardeners' Chronicle* is being questioned by correspondents as to the best means to rid forcing and other glass-houses of woodlice. These queries have elicited the recommendation of various recipes of more or less efficacy, all of which (except the boiling-water remedy) are, however, much too slow in their

action to meet the urgency of the case. However, before giving particulars of the remedy which has inspired this note, it may be useful to mention the various methods which I, like many other cultivators, have tried with a view to saving various species of plants from injury by woodlice. These destructive creatures may be speedily and effectually dealt with in Mushroom-houses by pouring boiling-water along the confines of the individual beds—that is, between the manure of which the beds consist, and the brick-wall and slate slabs enclosing the same, and whither the woodlice scamper so soon as daylight is let into the house by the removal of the shutters, &c. Boiling-water will also make short work of the pests applied similarly in Melon and Cucumber-houses and pits, when the plants grow in narrow borders enclosed by brick-walls. Where boxes containing Mint, &c., are placed on the floor of Cucumber and Melon-houses, with a view to making the most of artificial heat and available space, they should be lifted a little on one side, to enable boiling-water to be poured over the woodlice, which take shelter underneath the boxes as soon as daylight appears. This method of procedure, being repeated three or four times a week, will have the wished-for effect. Putting 3-in. pots with the hole at the bottom closed with moss or a bit of clay, putting into each a few slices of Potato, and placing several of these in each house or pit, will trap several woodlice in each pot the following morning, when they should be emptied into a vessel containing boiling water, the traps being then placed in position among the plants as before. Pots having a little dry moss or hay placed in them will also be taken advantage of by the woodlice as a hiding-place when daylight appears; the contents of the pots being treated as indicated above. Potatoes put in two longitudinally, and the flat sides hollowed out a little and then placed on Cucumber-beds, &c., will make useful traps. The Potatoes (scooped out side upwards) should be placed pretty close to the stems of the individual plants before dark, examining these before making up the fires for the night, and emptying the contents into a vessel containing boiling water; returning the Potatoes to their former position, this time putting the hollowed outside next the soil, and under which numbers of the depredators will be found secreted the following morning. In this way I have trapped large numbers of woodlice in my Cucumber-houses, but, nevertheless the stems of several of my plants were eaten half-way through, and in some cases eaten right through. This undesirable state of things led me to try something fresh, so I mixed some clay and fresh soot to a consistency of stiffish putty, immersed it in petroleum, and then formed it into circles round each plant, being careful to keep the mixture nearly 2 inches clear of the stems of the several plants in case any evil might result by contact with the petroleum-moistened mixture. This, to a certain extent, had the much-desired effect, that is, so long as the mixture remained moist and the potent odour of the petroleum lasted, no further attacks were made on the stems inside the circumscribed space.

Last year several market growers besides myself were exercising their minds as to the possibility of obtaining some more effectual and easier-applied remedy than those enumerated above, with the result that Steiner's Vermin (Phosphorus) Paste was recommended. This should be mixed with barley-meal, at the rate of three-parts of the latter to one of paste, putting a little of the mixture on pieces of cardboard, &c., and placing these at short intervals apart along the ridges, and wherever plants to be protected are growing. The mixture is freely eaten as soon as darkness sets in, and an examination of the beds, &c., the following morning reveals ample evidence of the efficacy of the phosphorus vermin-paste, the dead insects being found in great numbers pretty close to the baits. Indeed, so well do the woodlice like the barley- and phosphorus-paste mixture that one grower avers they eat their own dead.

Young Tomato plants also suffer severely from woodlice. In this case the mixture should be scattered over plants in small pots when these are standing pretty closely together. The application should be repeated at intervals of a few days until the pests have been annihilated.

"Steiner's Vermin Paste" is sold in jars and tins by all chemists and druggists at prices ranging from 3d. to 5s. each. *H. W. W.*

THE CULTIVATION OF BULBS AND BULBOUS PLANTS.

THOSE who have a soil of a light nature to deal with, experience not a little difficulty in cultivating plants of a bulbous nature, to anything like the perfection they attain to in soils of a heavier texture. Some, indeed, such as the Winter Aconite, the Snowdrop, and the common Grape-Hyacinth, prosper so amazingly in light soils as to become mere weeds, but generally all the better class, as Tulips, Hyacinths, Irises, Narcissus, and Lilies, are not so accommodating. Possibly the method of cultivation to which all of these would respond completely, would be to lift and transplant them annually into a fresh bit of ground. In private gardens, this, if not impossible, is a matter of difficulty, and hardy bulbs once planted have to remain a few years in the same spot. At one time, I used to lift Spanish Iris annually, this being as I considered the only certain method of keeping them healthy; but these, like the English Iris, which is also difficult to keep sometimes, may be preserved in health and vigour without transplanting so often. *Narcissus cernuus flore pleno* is another extremely shy growing plant, and where it does not actually die out it will often fail to produce flowers. Some species of Tulip and of other plants exhibit characteristics of a like nature, and many that do not exhibit the bad consequences attending unsuitable soil, &c., so much; scarcely, however, thrive quite as they would, and as under suitable conditions as to soil, they do. The reason why plants of this class fail is, I think, because they are insufficiently nourished, and so it happens that the application of fertilising material is followed by an improvement in the general health of the plants. It is very probable that some special plant food is absent from light soils, which in those of a heavier class is present in abundance. Fortunately, in practice it is not necessary to discover what this is before applying manures, because a great variety of substances yield equally good results, and in every case they are applied in the same way as surface dressings, the only difference being the season at which the several dressings are best applied.

If it is heavy material such as fresh loam, or the varied ingredients of a compost heap, the winter is undoubtedly the best season for its application. Of either of these composts a layer 2 inches in thickness affords a capital stimulant to growth. This kind of material is of particular value when a bed has been undisturbed for a period of three or four years, as it affords the necessary depth of covering which the newer bulbs, forcing themselves upwards, so greatly require. Spent Mushroom-bed manure is another good winter dressing, and of this a 1-inch layer will be found a sufficiently abundant dressing. This substance is well fitted for use on the surface of beds or borders.

Of other natural manures, none effects so rapid a change for the better as a very slight application of sifted pigeons-dung. The surface of the ground should be no more than "peppered" regularly over, and the material should not be applied till the plants are in full growth, or from the end of March till about the middle of May, according to the plant to be treated. Soot is valuable if the supply is so abundant as to permit of a 1-inch layer; as it is somewhat slow in action, especially in the early part of the year, its application must not be delayed. For *Gladiolus*, *Lilium tigrinum*, and *Montbretias*, a very suitable moment to apply

it is when the young growths are pushing above the ground.

The cleanest and most effective of all manures, more particularly for Tulips, Narcissus, and Irises, are chemical preparations. A slight annual dressing in the early period of growth, has a marvellous effect in imparting vigour to what are otherwise bad "doers." Of simple stimulating agents, nitrate of soda and sulphate of ammonia should not be used; superphosphate of lime, on the other hand, yields good results. Slag-meal may also be employed as a cheaper material, but it will be advisable to hoe this in, and a week thereafter to apply a slight dressing of either the nitrate or of sulphate of ammonia. It is to be understood, these are to be employed as necessary additions to

also have been selected and fixed, hybrids have been raised, and an added glory has been conferred on our spring gardens. The *fête des Narcissus* in the Swiss Canton Vaud is another form of Narcissus cult, and one which however agreeable in Switzerland would not be so acceptable here. Our view (fig. 83) shows the meadows in the immediate vicinity of the hotel at Les Avants, above Montreux, as they appear at this season, or a week or two later when carpeted with the Poet's Narcissus. It is no wonder that some of the residents of the Hotel find themselves obliged to seek other quarters during the Narcissus season. The perfume is overpowering. In the adjacent towns, the flowering of the Narcissus is made an occasion for merry-making, after the fashion of the

on dry rocks. It is therefore necessary to know what alpine species are water or bog-loving, and I will name some of them here, but merely those that are natives of Europe.

Aquatic plants properly so called do not abound in alpine regions, for the lakes and ponds there are too cold; their level is too irregular, and the surface too agitated. There are, however, a few purely aquatic species among the alpine plants, notably the pretty *Ranunculus trichophyllus*, of which several varieties are found in the pools and small lakes of the high Alps. Among the varieties are *R. confervoides*, found in the Pennine and Graian Alps, with small flowers and of very slender and compact habit; *R. radians*, with large white flowers, found in lakes on Jurassic formation.



FIG. 83.—POET'S NARCISSUS GROWING WILD IN THE PASTURES AT LES AVANTS, SWITZERLAND.

the soil. They are of importance, not only in the case of varieties or species difficult to grow, but also in producing a more vigorous growth in commoner kinds, that without their aid would not attain to the same degree of perfection. Nor can any of the materials referred to ward off the necessity for periodically breaking up beds when the bulbs have become, through lapse of years, so numerous as to be unable to procure nourishment and room to grow. *B., N.B.*

POET'S NARCISSUS.

JUST now the lovers of the Narcissus are in the height of enjoyment. Much good has been effected by the revival of the Narcissus cult. Seedlings and varieties come up for adjudication, and are "capped" or rejected according to their merits or to the taste of the day. The botanical classification has been fixed. Varieties

batailles des fleurs at Nice. Everybody is, for the time being, Narcissus mad, and many wear the badge, of which we give an illustration (fig. 85, p. 266), and the shops at Vevey and Montreux are full of such decorations in the season. BARR, the Daffodil King, the pioneer of the present fashion; and ENGELHEART, who has done so much for which dry-as-dust scientists will thank him as heartily as do the aesthetes, are two who certainly should be thus decorated, but if we begin to allot honours of this kind, it will be difficult to know when to stop.

THE ALPINE BOG GARDEN.

I HAVE seen in many alpine gardens in England space devoted to aquatic, bog or marsh plants. In some cases such places are furnished with alpine and other unsuitable plants which fare miserably, while other and aquatic species are left to perish

Then there is the pretty *R. aquatilis*, with large white flowers, enclosing a cluster of yellow stamens, and the submerged leaves of which are very finely cut, while those which float are merely divided into from three to five lobes, and suggest *R. alpestris*.

Callitriche stagnalis and *C. vernalis* are found in many quiet pools among the mountains, the latter plant growing in the lakes of the Jura. Both species have delicate and slim branches, bearing opposite, elongated, oblong, or even linear leaves under the water, those above being larger, spatulate, or like an arrow-head, forming a green rosette on the surface. The flowers are insignificant, but the plant is pleasing, and thrives in tanks in the house or conservatory.

Ceratophyllum demersum and *C. submersum* are delicate plants, finely cut, and in habit somewhat suggestive of *Equisetum*. They bear greenish flowers at the axils of the whorls of leaves, but are

not otherwise remarkable, although pretty enough. Utricularias are peculiar plants with very fine flowers, and are alpine alien to Pinguicula in the family Lentibulariæ. The plants hang into the water, and have finely cut foliage like that of Filmy Ferns, but with little air-bladders that support the plants, and also absorb insects, by which they are nourished instead of by the roots. Utricularias from our cold regions are well suited to the alpine garden, for they have pretty flowers, bright yellow, lightly streaked with deep purple. The most suitable species are *U. vulgaris*, *intermedia*, *neglecta*, *minor*, and *brevicornis*. It should not be forgotten that these plants, like their allies, the Pinguiculas, after the season of growth is over, are concentrated into a small scaly bud, which remains in a state of latent life until the following spring.

Many Potamogetons belong to the alpine flora, some thirty species being found in European mountain waters. Some are wholly below the surface, but the majority have submerged leaves that are elongated, filiform, and linear, and also floating leaves more or less oval, spatulate, or orbicular. The flowers are insignificant, and borne in dense clusters. These are aquatic alpine, easy to cultivate. The most suitable are *P. pusillus*, *compressus*, *natans*, *fluitans*, *alpinus*, *perfoliatus*, *crispus*, *gramineus*, and *pectinatus*. They should be in quiet water, from 2 to 5 feet deep, according to the species. The Nymphaeas are not alpine, but characteristic of the waters of the plains. But in large pools, European species might be admitted, such as *Nuphar pumilum*, a vigorous plant from the north. The leaf is thick and long, the small flowers are globular and orange, and mix well with the other plants on a pond.

If, however, the purely aquatic flora of our mountains is not richly represented, there are, on the other hand, many bog-plants, and even sphagnum, from damp Alpine valleys and the borders of streams that might be cultivated, and would interest the curious. *Henry Correvon, Geneva.*

AMERICAN NOTES.

IMPROVEMENT OF HOME GROUNDS AND GARDENS.

I SEND you herewith *Planting and Planning Home Grounds*, issued by the Stout Manual Training School at Menomonie, Wis., and *Surveying and Arranging Home and School Grounds*. The preface of the one and the circular letter of the other state the objects which have led to their preparation.

In Germany, Krupp, at Essen; in England, Levers, at Port Sunlight; in this country, Patterson, at Dayton, have been notably successful in making the surroundings of their factories and employees' homes most attractive. Such men are not sentimentalists—this work is made a part of their business; to it they give their best thought, and employ the ablest advisers to help them plan and execute, as they do in other departments, their object being to make the workmen more contented and more efficient, and at the same time provide for each member of a family healthful, attractive occupations for leisure hours. In this country some manufacturers, like the Drapers at Hopedale, have established an extremely neat and orderly condition in their village by offering prizes for the best kept front and back yards, and have constructed artistic homes for the work-people. The Cleveland Cliffs Iron Company, at Ishpeming, Mich., have gone still further, by offering prizes for the best arranged, planted, and maintained grounds.

Such examples are leading manufacturers to make the surroundings of their office buildings and sometimes their factory-grounds more attractive. There are, however, extremely few examples of broad and comprehensive treatment like those referred to. Improvements of this character, which come daily under the eyes of many persons, help to raise the standard of public taste. Quite as important in its influence is the work of some rail-

roads, notably the Boston and Albany of Mass., and the Pennsylvania system in improving their station-grounds either by assisting and offering prizes to the workmen, or by employing a man whose whole attention is given to the work. In Germany are many small gardens in school grounds used primarily by teachers to serve their tables with garden supplies, and occasionally as a means of education. In this country, there are occasional public school grounds that are conveniently arranged and made attractive with grass and plantations primarily for ornament; while others, like the George Putnam School near Boston, are planted primarily with a view to giving instruction to scholars. It is intended that the work done by the Stout Manual Training School shall have a direct instead of an indirect influence upon the appearance of the community as a whole, and that every citizen shall have the advantage of the advice of a trained landscape architect in the improvement of his home grounds, the adviser to consider the general appearance of the town as a whole in his suggestions to individual lot-owners. Few individual lot-owners or school officials, whose appreciation of that which is beautiful would lead them to make their home and school-grounds more attractive and convenient, have the means to secure expert advice, or a knowledge of the best methods of making even the simplest improvements. It is to aid such persons that certain instruction books have been prepared.

Work of this kind should be the beginning of a widespread movement to improve the appearance of home and public school-grounds. The monotonous uniformity of home grounds is not relieved by the prevailing neatness in their maintenance. Inside the home there is usually some evidence of thought, study, and a taste representative of the individuality and character of the family. It is seldom one sees such individuality in home grounds, and school grounds are usually much below the standard of home surroundings. They degrade rather than uplift the taste of pupils.

Three years ago the American Park and Outdoor Art Association was formed, and now has a membership from all parts of the Union engaged in educating the public taste on outdoor art. *Warren H. Manning, Secretary of the American Park and Outdoor Art Association.*

FLORISTS' FLOWERS.

THE FLORISTS' TULIP IN APRIL.

APRIL is always an anxious time for the cultivator of the florists' Tulip. True to its uncertain character, it is bringing with it blustering winds, a low temperature by night, and storms of hail. The bold leaves of the Tulip have expanded, and they are in danger of being harmed by the winds and riddled by hail. There is such an intimate connection between the leaves and bloom, that we have it on the highest authority that "any hurt to the leaf is sure to affect in some measure both the bloom and the future bulbs." Bright sunshine falling upon the leaves when they are frozen works great mischief, and when leaves are stiffened by frost, and become blown about by the wind, harm is certain to follow; and so protection from sun in frosty weather, and some screen which will ward off cold, cutting winds, are equally desirable. In one of his delightful papers on the Tulip, the Rev. F. D. Horner points out that it is a critical time for the young buds when they are just at the ground-level, enfolded in the heart of leaves. These frequently hold the rain-water sufficiently to surround or cover the buds, and when severe spring frosts happen, and especially in the North, they become frozen up. The water can be liberated by gently opening the leaves, or by blowing it out with a tube, such as a length of small-bore brass gas-pipe, and it is worth while either to prevent the water being frozen, or to dislodge it altogether. As the flower-stems rise the greatest enemy to be

feared is hail. It is sure to mark the foliage, and every shot that strikes the green bud is likely to bruise it and leave a mark that will not only appear on the flower, but also be a source of weakness, whereat decay of the petals will first and probably prematurely set in.

It is at this season when any imperfections in the rooting of the bulbs manifest themselves. Tulip cultivators have occasional experience of this, and the most general cause of failure in this respect is the presence of something obnoxious in the soil, by which the fibres are prevented from running in it. It is an experience rarely falling to the lot of those who cultivate the early varieties in beds; and happily not frequently in the case of those who grow for exhibition. All looks promising until the flower-buds should be showing, then the foliage loses colour and dies down. "The old bulbs are able without aid of roots to support leaf-growth thus far, and to a considerable degree; but by April the time has come when it is naturally a good deal exhausted, and it is time for the root-fibres to take up the work and supply a large share of food for the elaboration of leaves and blossom. If the fibres are dead, all this process fails, and all the strength the old bulbs may still have will be directed towards saving the life of the plants, by doing what is possible towards the formation of the new bulbs, which in the loss of its natural supporters, the leaves, and fibres, seems left as it were a vegetable orphan" (Rev. F. D. Horner).

Tulips of all types are late in coming on to bloom this season; the retarding weather holds them back. In our public parks there is a great promise, provided turbulent winds, cutting frosts, and driving heat, do not greatly affect their development. *R. D.*

CULTURAL MEMORANDA.

ANTHURIUMS.

THE most satisfactory method of increasing the stock is that of mossing the tops of the old plants, using nice fresh sphagnum-moss for the purpose, and taking care to cover a few of the young roots. The plants will quickly make new roots, and in the course of a fortnight or so the stem may be partly severed just underneath the point where the moss was placed. This having been done, the plants may soon be potted, as they root very quickly if the moss be kept saturated with water. The most suitable potting compost for Anthuriums is one that consists of one part fibrous loam, with the fine soil shaken out of it, one part good fibrous peat, and about three parts clean sphagnum-moss. A quantity of charcoal in pieces as large as a hen's egg is of great value if mixed with the compost.

The appearance of the plants will be greatly improved by surfacing with moss, and a dash of coarse silver-sand, afterwards trimming the moss over with a pair of scissors. Anthuriums enjoy moisture, and may be syringed about six times every day. They succeed best when the foliage is always wet, and will remain free from all insect pests. They are gross feeders, and when growing freely may be watered twice weekly with almost any sort of liquid manure. *Arthur Smith, Edenhall Gardens.*

BOWERS OF IVY.

The Ivy is employed in the garden in a great variety of ways, and in almost all cases a good effect is obtained from the plant. I would recommend a more frequent use of the plant for the formation of summer bowers. There are many other plants possessing a climbing habit that are adapted for making shady retreats from hot sunshine, but none more so than the Ivy.

Bowers should be proportionate in size to the grounds which contain them. For limited grounds an arbour or a short length of bowers is sufficient, but in an extensive place a considerable stretch will be more in keeping with the surroundings. There will be needed an iron framework, sub-

stantial in character, and of the required height, which should provide a walking space of about 8 feet wide. Prepare the borders on either side by trenching and manuring the soil, always bearing in mind that Ivy is a gross feeder, and that the roots require a rough porous soil. Plants in pots may be used for planting, and should be put at distances of 12 to 15 inches apart on the outside of the framework, treading them carefully, yet firmly, in. Obtain vigorous plants, and give close attention to securing the leading growths to the supports. Copious supplies of water will be needed in dry weather, and if proper attention to these details be given, the plants will quickly cover the framework. The space under the arch should be neatly gravelled, and firmly rolled.

Ivy, when thoroughly established, should be clipped with shears annually early in the month of

lattice window. Although I had not previously seen *Erythroniums* cultivated in pots, they are valuable for the purpose, and this specimen was in robust health. What a beautiful plant is this for the rockery!

VARIEGATED AMERICAN ALOES.

The variegated variety of *Agave americana*, so admirably adapted for placing in summer in vases on garden terraces, and sometimes met with in gardens as splendid examples of long continued good cultivation. Some of the largest specimens I have seen were at Ven House, in Somersetshire, ten years ago, and I believe they are still there.

Although *Agaves* are of easy culture, many years must elapse before young plants attain to sizes suitable for placing in tubs or vases, for the ornamentation of the terrace. It is not possible to force the growth in any way. A loamy, but open

TREE - GROWING IN THE TRANSVAAL.

THE *South African Agriculturist's Year Book* for 1900 (Wynberg) contains, among other interesting matter, an article dealing with tree-growing in the Transvaal. We read that "About 450 acres have been planted with trees on the estate Turfontein by Mr. William Nelson, who superintended the laying-out of the grounds, the planting of avenues, and the formation of roads.

The propagating-pits are oblong beds edged with bricks, with varieties of trees and shrubs in various stages of growth, literally by the million; of two varieties of Pine alone Mr. Nelson had 15,000,000 in stock—10,000,000 of *Pinus Pinaster*, and of *Pinus insignis* 5,000,000, whilst of several other varieties the numbers run to well over the million.

Of other plantation trees—Gums, Wattles, and Pines, other than those already mentioned, the numbers range from half a million to two or three millions, and there is always considerably over a million Japanese Privets in stock. A beautiful little plantation of 200,000 British Oaks was one of the finest sights in the nurseries, and the acres of Peach, Apricot, Almond, and other varieties of fruit trees just bursting into blossom constituted a sight alone worth going to Booyesen's to see. Before leaving the trees mention must be made of a particularly beautiful variety of Pine, *Pinus australis*, of which the foliage, from an upright central growth, droops over like the spray from a fountain.

Coming now to the flowers, the visitor was shown 75,000 Roses in the propagating pits, and some 50,000 more were already transplanted into the grounds, whence they will be taken for disposal to customers at the proper season. These included no fewer than 250 distinct varieties; a fact which alone speaks volumes for the resources of the establishment.

About the centre of the nurseries stands a very large plant-house. This is crammed with flowers and plants requiring more or less shelter, and obtained from every part of the world. These included thousands of magnificent Ferns, Magnolias, Camellias, Azaleas, &c. Of Cannas alone there were over 100 different varieties, of which thirty were new varieties just received from France. In this house were also to be seen hundreds of plants seldom met with except in the most exclusive of conservatories. These included Tea, Indigo, and other economical plants, many of the rarest and choicest specimens of trees and ornamental shrubs, Japanese Bamboos, and botanical specimens from practically every country in the world.

There is a real curiosity of plant growth in the shape of two grand specimens of the "Elephant's Foot" plant—*Testudinaria elephantipes*. These were indeed remarkable, with the outer integument cut out so as to form a number of pyramidal structures and strata, for all the world like a dark grey shale. It was difficult to believe that they could be of natural growth, so extraordinary did they look. Next came plantations of fruit trees, including some 40,000 Apple, 30,000 Pear, 15,000 Walnut, and about 20,000 Quince—to mention only a few of the different kinds of fruit trees stocked by Mr. Nelson. Next came the more essentially European plantation and avenue-trees, golden-leaved Elms, Hawthorns, and Silver Birch; a magnificent lot of Oriental Plane-trees, European and American Birches in endless variety, a very beautiful variegated Sycamore, and many others. Specimens of the Wellingtonia—the largest tree in the world—better known to the uninitiated as the giant-tree of California; the *Salisburia avicatifolia*, a tree with a large Maidenhair-shaped leaf, an ornament to any garden; the *Philadelphus grandiflora*, a flower which is being used as a substitute for the Orange-blossom; a fine lot of the beautiful Flame-tree of Australia; the *Parkinsonia aculeata*, a very remarkable-looking tree; *Acanthus*, *Arundo*



FIG. 84.—AZALEA "DUCHESS OF WELLINGTON."

April, at which season growth is commencing. Leading shoots needed for the purpose of extension and for filling gaps must be taken care of when the clipping is done. The most robust varieties only should be planted; *Hedera helix canariensis* is one of the very best, being wonderfully robust. *H. h. algeriensis* is another suitable variety, as also is *H. h. lobata major*.

ERYTHRONIUM DENS-CANIS.

This favourite old plant was late in appearing above-ground this season. The Dog's-tooth Violets, as the *Erythroniums* are called in the vernacular, thrive wonderfully well with us, and our soil, which is sandy, appears to suit them. They are planted close to some old statuary near the margin of the turf, and 10 yards from a fountain, a clump here, and a clump there, in wild confusion; but really I think it would be difficult to find a position where they would be seen to better advantage.

When passing a cottage recently, I noticed a very fine specimen of this species growing in a

compost suits *Agaves* best, and a quantity of mortar-rubble or broken bricks should be incorporated with it. Propagation is easily (though slowly) effected by potting up the suckers at potting time. *H. T. M.*

AZALEA "DUCHESS OF WELLINGTON."

THE subject of our illustration (fig. 84), of neat habit of growth, and pleasing floral tints, was shown at the Royal Horticultural Society's meeting on April 10 last, at the Drill Hall, James Street, S. W., by Messrs. R. & G. Cuthbert, florists of Southgate, Middlesex, and for which an Award of Merit was made. The flowers are arranged in neat terminal corymbs; the lower segments are of a pale flesh tint; the uppermost central segment flamed and spotted with cherry-red; the lateral upper segments marked in the middle area by a row of small dots of the same colour. The variety belongs to the true Ghent section of hardy Azaleas.

Donax variegata, a variegated Reed in white and dark green, are all there, and Cyresses by the million; 3,000,000 of *C. macrocarpa* alone being in stock. English Laburnums, English Box, Rhododendrons, Lilacs, Acacias, Lemon, Orange, and Naartje trees, &c., in large variety."

THE WEEK'S WORK.

THE FLOWER GARDEN.

By J. BARNOW, Gardener to the Earl of Ilchester, Abbotbury Castle, Dorset.

Moultretias and *Tigridias* in the warmer parts of the country, revel in moist land and full sunshine, flowering with great freedom and increasing rapidly. Both plants may be dug up at this season, divided, and replanted. The best kind of soil for them is a rich sandy-loam.

Wall Climbers.—Those of a half hardy nature, which may be beginning to grow, may be pruned and thinned out. Special attention is necessary in the case of early flowering deciduous climbers, such as *Jasminum nudiflorum*, *Forseythia suspensa*, and *F. viridissima*, which are the better for being left unpruned till out of flower. *Olearias* in variety, *Olea excoelso*, *O. fragrans*, *Myrtus communis* and *Eugenia lineata*, *Myrsine africana*, *Phlomis frutescens*, *Tamarix gallica*, *Euonymus fimbriatus*, *Rhamnus alaternus*, will be benefited by the removal of superfluous shoots, so as to admit sunlight and air to the heads. Some of these plants, being in some localities only half hardy, flower better when the shoots become thoroughly matured; hence the need to keep the shoots somewhat thin; they also withstand the cold better than when they are left unpruned. Climbers, &c., growing on old walls should have their shoots thinned out, but not very severely, as they may, with the aid of staples and wall-hooks, be allowed to grow with some amount of freedom, spurring in foreright shoots so as to give a verdant appearance to the plants from base to summit.

Camellias in the Open Air.—It is not very generally known, or the knowledge is seldom acted upon, that the *Camellia* is able to live out of doors and produce numerous flowers in sheltered spots in the southern parts of the country. My experience here with a large collection is that, during severe winters, when 20° of frost have been registered, not a plant was lost. The necessary conditions are protection from cutting winds, and a warm situation, conditions often to be found in thin woods and gardens, well furnished with thick high shrubberies of evergreens. To flower the plant satisfactorily, and render it proof against hard frosts, the wood must be well ripened. At the time of writing, our *Camellias* are covered with their showy flowers in great variety of colour; and yet not one of them has received artificial protection. It is very necessary that the land be relieved of stagnant moisture, and proper preparation made in regard to the soil and its depth. A favourable aspect for *Camellias* is S.S.W., having protection of a tall hedge, or a wall on the east side, so that the sun's rays do not reach the plants very early in the day, a rapid thawing of the blooms when open damaging them greatly. *Camellias* when trained against a wall, are easily protected from frost when in bloom, by hanging doubled fishing-nets, &c., over them of an evening when frost threatens. A very suitable compost consists of turfy peat two-thirds, dried cow-dung one-third, together with a moderate quantity of coarse sand or road-grit, and soot. The whole should be mixed and thrown together in a heap a few days before being used. *Camellias* which have been grown in the greenhouse are suitable for planting out of doors, the wood being firm and well matured. Small plants require careful treatment for a few years after being planted. The staple should be excavated to a depth of 3 to 4 feet, which will afford an opportunity to lay in drain-pipes or rubble-drains, and over these to place peat-turves, top-side downwards, and then follow with the above compost. If the *Camellias* are very strong and vigorous, three layers of such turves would be better than the compost, as being more lasting. As the *Camellia* begins to grow when flowering ceases, then is the safest time to harden off the plants by opening the greenhouse ventilators to the fullest extent; or to remove the plants, if in tubs and pots, to a sheltered spot out of doors for a time. The

month of May is a fitting time to transplant *Camellias* to the open ground, and to carry out any pruning that may be called for. The plants should be planted somewhat close together for mutual protection, at the same time each plant should be afforded ample rooting space. Do not bury the ball more than 4 inches in the case of large plants, and less than this in the case of small ones.

Violets.—At this season, beds of *Violets* in variety should be formed with young runners furnished with roots, avoiding anything not of this season's growth. The soil should be dressed with leaf-mould or well decayed hot-bed manure, and be deeply dug. Plant the runners in straight lines at one foot apart, spreading out the roots in planting, and using a trowel in preference to a dibber. If planted where there is a little shade to be got from fruit-bushes, &c., kept supplied with water in dry weather, and afforded weak liquid-manure occasionally, good healthy growth will ensue. Such varieties as *Marie Louise*, *Comte de Brazza*, *Neapolitan*, &c., should have the runners removed as they push forth, and be kept to one head. Thus treated they make fine plants for transplanting to frames in the first week of September.

Miscellaneous.—As soon after heavy rain as the roller can be used on the lawns without smearing the turf with the worm casts, let it be got to work; and when mowing must begin, let the scythe be employed for the first two cuttings, and afterwards, when the turf has been well swept with the broom, the machine may be used with safety. Continue to bring all but the more tender bedding-plants from the glasshouses and pits, under temporary shelters; and see that all such shelters are rendered safe and efficient, the weather being very treacherous at this season. The old roots of *Dahlias* that have been established in pots some time, may be placed in turfen or other pits, and afforded plenty of air in mild weather. *Gladiolus* may continue to be planted. Stir the soil of the bulb-beds if the carpet plants permit of this being done, and in porous, dry soils, afford water to the various bedding-plants, bulbs, &c. When the flowers of *Tulips*, *Hyalanthus*, *Narcissus*, &c., are expanded, and it becomes necessary to apply water to the beds, let a spouted water-can, or a hose having a small nozzle be used, instead of a rose or a spreader, so that the flowers be not wetted.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener to F. A. BEVAN, Esq., Trent Park, New Barnet.

Disbudding the Peach and Nectarine.—The trees have made much progress in the last ten days, so that thinning the young shoots, or disbudding, may now begin. This operation should be carried out so that no perceptible check is given, and with this intent it should be spread over a period of from three to four weeks according to the conditions of the weather. The first thinning may consist of the removal of shoots standing at right angles to the branches (forerights), those pointing towards the wall, and a slight general thinning of the remainder to about twelve inches apart. In about a week later, another disbudding may be done. At the last thinning one good shoot should be left at the base of last year's shoots, unless circumstances determine otherwise. If two should be wanted, retain the next best placed shoot above this, only let it be on the opposite side of the branch, and in all cases leave a shoot at the tip, which may be stopped later on should there not be space for training it in full length. Let all well placed shoots necessary to fill up vacant spaces be retained. With regard to young trees, sufficient shoots should be retained, not only to furnish bearing wood, but for extension shoots. Such shoots as show great vigour must be stopped in order to equalise the flow of sap, and if the resulting breaks are also vigorous, let them also be stopped. Oftentimes numerous laterals result from this second pinching, and if there is space for some of these, a few of the best may be tied or nailed to the wall. The disbudder should be provided with a puff for distributing the tobacco-powder to use against aphides harbouring at the tips of the shoots, until such time as a liquid insecticide can be made use of. All Peach-borders must be kept in a properly moist condition, but it is scarcely likely that water will be required for some weeks, excepting in gardens where glass copings are in use; in any case the sub-soil tester should be employed. On strong, adhesive loams

it is a good practice to mulch the alleys with long litter before the soil gets compacted by being trampled upon, and thus keep the soil open. A line of broad pieces of planking laid on the alleys serves the same purpose, and is comfortable to walk upon.

Strawberries.—The land should now be hoed, and weeds and rubbish raked off previously to mulching the space between the plants. Aged plantations and weakly plants should be afforded dressings of well-rotted manure, and if chemicals are used, it should be with great caution, otherwise an over-luxuriance of foliage may be induced. Potash is a good manure for these plants. If slugs are troublesome, let the soil between the plants receive a dressing of new-slaked lime. The best kind of material for mulching of Strawberry-beds is long stable-litter, freed from all the finer and shorter portions, and used just as it comes fresh from the stables. This will become washed and sweetened by rain some time before the fruit ripens. An early application of the straw mulch is very desirable on light, dry soils.

FRUITS UNDER GLASS.

By J. ROBERTS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Later Peach-houses.—The gardener should be constantly on the alert to remove superfluous shoots, and any that are likely to crowd the trees later on. Always work in this matter from the top of the tree downwards. The same holds good with thinning the fruit, for there is no greater waste of the energies of the trees than to allow a large number of fruits to remain until after stoning and then to thin them. The setting bloom may still be assisted by shaking and otherwise distributing the pollen.

Vines.—Young Vines planted last year are commencing to grow freely, requiring frequent attention in order to secure the leaders in their proper position, and to throw the whole strength of the plant into the forming of one strong shoot. Let all shoots on the canes, except the central one, be disbudded, and one a few inches below it, which should be stopped at the fifth leaf reckoned from its base. The object of retaining this second shoot is to furnish a new rod, in case of accident to the other. Where the Vines are of great strength, two or three moderate-sized bunches may be allowed to develop. Encourage short-jointed firm growth by employing a moderate temperature only, and free ventilation. Let the rods be stopped at every 8 or 10 feet of new growth, until they reach the top of the Vinery, when all future growth should be unrestrained. The laterals should be stopped at one leaf from the point of origin, until near the top of the house, at which point several of them may be allowed to extend along with the main rod, in order to encourage vigorous rooting. Super-numerary Vines should always be planted, and these will be able to carry half-a-dozen bunches each, and may be retained for three seasons, taking fruit from them each year higher and higher so as to avert any crowding of the foliage and shoots of the permanent Vines. By adopting this practice the serious matter of overcrowding the permanent Vines need not ensue. [In order to force the cane to throw out laterals regularly it is good practice to stop the leader, and keep it stopped, till the dormant bud at that point breaks. Ed.]

Aged Vines.—Such of these as have been partially lifted may, and commonly do, start into growth rather lacking in vigour, and in order to strengthen the sluggish activity of the roots, a steady degree of moisture should be afforded the borders without saturating the soil, and considerable atmospheric humidity allowed in the vinery. The temperature of the vinery at night need not exceed 55°; and during bright sunshine a thin shading thrown over the roof will keep the foliage from flagging. A light crop of fruit only should be taken, otherwise most of the benefits derived from lifting the Vines will be long delayed. After free growth has commenced, the laterals must not be too much or too frequently stopped, except the shoots that will bear bunches next year.

Melons.—Having obtained a good set of fruits, and these are observed to be growing in size, let the number be reduced to three, or at the most four, fruits per plant, the fruits retained being about of equal size, and in good positions as regards sunlight, the heavier part of the crop being on the upper parts of the plants. The fruits on plants

grown on trellises must be supported with specially-made nets or pieces of slate of about 6 inches square, having holes drilled in the corners for the purpose of alighting them with wire or twine. Slate being but very slightly absorbent of moisture, very little dampness remains round the fruit after syringing the plants. At this stage every flower should be removed early, and superfluous shoots stopped forthwith. Keep the soil of the bed uniformly moist until the fruits begin to show signs of ripening, and afford weak liquid-manure whenever root-moisture is necessary, supplementing this with a light top-dressing of turfy loam and fresh soot. Syringe the foliage lightly at closing time on sunny afternoons, and maintain a steady amount of humidity in the air of the Melon-house by damping the floors, &c., or by means of evaporating-troughs. Care should be taken to preserve the foliage first formed in perfect condition until the fruits are ripe, otherwise they will be deficient in good flavour. The bottom-heat should be kept at from 75° to 80°, and that of the air at from 70° to 75° at night, and 80° by day. Let air be freely admitted on mild days, and if the foliage appears lacking in strength, apply a light tiffany shading during the hottest parts of the day. Seed may be sown and successions planted out in accordance with the amount of accommodation available.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen, S.W.

Dendrobium Phalaenopsis Schröderianum.—The comparative ease with which this plant may be grown, and its wonderful freedom of flowering, entitles it to a place in every plant-stove, even in gardens where Orchids are not generally cultivated. The conditions prevailing in a plant-stove are those just suited to its requirements when in growth. Suspended in the lightest position, syringed, and otherwise treated as the other occupants are, strong leafy bulbs develop, which, on reaching their limit, produce numerous racemes of lovely flowers. As the plant is now pushing forth new growths, the surface material may be renewed, and if necessary a new pot afforded. In case of repotting, let the plant be treated exactly like a newly imported plant, cutting away the dead roots in order to lessen the size of the ball a good deal, so that a pot or pan of a similar size to the old one may be used. Place a crock, hollow side downwards, over the hole, place the plant in the pot, tying some of the pseudo-bulbs to the wires, and fill in with crocks, and afford surfacing of good turfy-peat and fresh moss, mixed together in equal proportions. Until roots emerge from the base of the new pseudo-bulbs, water should be very sparingly applied, but afterwards, in favourable conditions, too much water can scarcely be afforded. During dull and rainy weather, the water-can and syringe should be very carefully employed, or the young growth will damp off. Newly-imported plants should be closely examined for traces of the little boring insect which often infests imported plants, and which if left on them would soon spread, and bring ruin on the whole collection. The only preventable means that I can recommend is to forthwith burn all affected plants or pseudo-bulbs. Other species of *Dendrobium* needing similar cultural treatment and situation are *D. bigibbum*, *D. Statterianum*, *D. Leeanum*, *D. Goldiei*, *D. undulatum*, and *D. formosum*. These species about once in three weeks should be lightly fumigated in order to check the increase of thrips.

Odontoglossum grande.—Plants of this species now showing signs of activity after a long rest, may be gradually encouraged to push forth leaves and pseudo-bulbs. Those plants which have sufficient rooting space for a time should have most of the surface materials renewed, and others needing more space should be turned out, all decayed material and roots removed, and returned to clean pots which are rather more than half filled with crocks, placing over these and amongst the roots good turfy Orchid-peat and living sphagnum-moss in equal proportions. These plants should then be placed in a genial house, where the day temperature rises considerably with sun-heat, the night temperature does not go beyond 58°, and the conditions are genial and favour growth. Water should be sparingly applied for some time afterwards, and spraying overhead and amongst the pots on bright days carried out instead. *O. Inseleyi* needs to be kept drier at the root than *O. grande*, otherwise the treatment is similar.

Odontoglossum Uro-Skinneri is a very distinct and useful species, and the flowers suitable for many different uses. Here the plant thrives in company with *Masdevallias*. When the roots appear at the base of the young growth is the right time to repot it; in doing this, let the base of the plant be raised well above the rim of the pot, and afford plenty of drainage. Owing to the saturated state of the atmosphere, large supplies of water at the root are only needed during the height of the growing season.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Spinach.—To afford a continued summer supply of this vegetable, sowings should be made at intervals of three weeks, and after this date partially-shaded positions should be chosen for the crops, too much exposure to sunshine soon causing the plant to run up to flower. The soil in which *Spinach* succeeds is one that is naturally moist, and has been well trenched and manured. It forms a crop for interlining the rows of Beans or Peas, and in such places the plants obtain shelter from the sun; but it is a method which should be carried out only when the rows of Peas, &c., are 5, 6, and 7 feet apart. When grown on land by itself the drills may be drawn at 12 to 15 inches apart, 6 inches broad, and 1 inch deep. If at the time of sowing the soil is dry, water should be applied to the drills, and the seed steeped in water for four or five hours before sowing it. If the seed be of good germinating power, sow thinly, and thin out partially when the plants have made two or three leaves; and later, afford another thinning, leaving the plants at about 6 inches apart. The *Victoria* and the round-seeded *Spinaches* are best for summer use, not running so quickly to seed as some others.

Turnips.—The first thinning may now be made from the plants raised from the March sowings. Turnip-seed may now be sown at intervals of fourteen to twenty-one days, till the end of the month of June, and in early districts a month later. The cultivation of the Turnip is more difficult in stiff soils than in light ones, the plants being more apt "to bolt" before the bulbs are ready for use; and as a corrective, the most friable, lightest plots should be chosen for this crop in gardens situated on soils of this class. The plot of land should be trodden regularly, made level and smooth, and then the drills should be pegged out at 15 inches apart, and be drawn, and not quite 2 inches deep. This method is preferable to broad-cast sowing, the ground being more easily weeded and hoed. It is good practice before sowing to dress the plot with fresh soot, wood-ashes, or lime, in order to protect the young plants from the Turnip-fly. During dry weather, water should be copiously afforded. Among the best varieties for these crops will be found Criterion, Strap-leaf, and Veitch's Red Globe. The thinning of the plants should be done at twice, as in the case of *Spinach*.

Borecoles.—The Lapland, Asparagus and Cot-tager's Kales have in recent years been almost worthless, owing to a disease whose ravages so far are unchecked, and as these vegetables filled a gap between winter Coleworts and early Cabbages their loss is much felt. The tall and the dwarf curled Kales are very hardy, but the heads are not equal in form, nor the sprouts so tender and delicate as the former. Seeds of all of these may now be sown on fairly rich land in a sunny situation, drawing seed-drills one foot apart in preference to broad-casting the seed. Make the land firm and level before proceeding to sow it.

Frame Potatoes.—The earliest crops are now maturing, and the soil should be kept moderately dry rather than moist, and during bright days an abundance of fresh air should be afforded the frames. The next of the succession crops may at this date be so far advanced as to need moulding up. The soil in these frames should be maintained in a moist state. The lights must be closed early by 3.30 P.M., after having slightly wetted the foliage.

Mushrooms.—The crops on beds in the open ground with the warmer weather prevailing will be coming along more freely than heretofore, rendering the straw and hurdle-coverings unnecessary. If on examination the beds are found to be dryish, apply tepid water copiously, and replace the old coverings with a thinner one of hay or straw.

PLANTS UNDER GLASS.

By T. EDWARDS, Foreman, Royal Plant Gardens, Frogmore.

Caladiums that have become established will now need less shading. They should be provided with light tiffany blinds, for use only during very bright sunshine in the middle of the day. This additional exposure to light will develop greater colour in the foliage, and the leaf-stalks will be firmer. Maintain a hot and moist atmosphere, and a temperature of 70° during the night. Admit outside air more freely than hitherto, but prevent cold draughts occurring. The plants will need frequent root-waterings, and may be syringed with tepid soft water morning and afternoon, closing the house for three or four hours, when the temperature (with sun-heat) may safely be permitted to rise to 85° or 90°; the condensed vapour on the glass will afford sufficient shade. Those plants intended for specimens, or for table-decoration, should be neatly staked, drawing the foliage outwards, and leaving the centre of the plant open for the larger leaves to develop fully. Cut off all flower-spathes as soon as they appear, unless they are required for cross-breeding.

Achimenes.—When stems have grown 2 or 3 ins. high, transfer the plants to pots or pans in which they will flower, using a light sandy compost of equal parts of peat, loam, and leaf-mould. For keeping the mould within the wires of suspended baskets, the trimmings from the edgings of walks, and which have been in a heap for some time, is better than moss. An intermediate temperature is best for the present, but when the plants have again rooted, and are growing quickly, they will need to be removed to the greenhouse or conservatory.

Celosias, Balsams, &c.—Pot off seedlings of these and other such annuals into small pots; any neglect of them at this stage will render them comparatively useless, and if any should become "drawn" it will be best to throw them away and sow more seeds. Use a light sandy soil for these seedlings, and keep them close to the glass. *Celosias* are very subject to attacks from red-spider, and must be syringed regularly with water. Heated pits or the shelves in greenhouses will afford suitable conditions for the plants at present.

Thinning-out of Mignonette, Gypsophila, Godetia, Calliopsis, Annual Chrysanthemums, &c., in pots, must be given timely attention. Plants of *Carnation Margarita*, when large enough to handle, should be potted off singly into thumb-pots, using a light sandy mould. For autumn and winter-flowering, they are best cultivated in 6-inch pots. During the summer they may be plunged in ashes outside, and fully exposed to the sun. We have planted them out and potted them again in September; but this practice was not very successful. About 80 per cent. of the plants usually produce double flowers, and it is advisable to allow the plants to open one flower before the final potting takes place, so that the single varieties may be rejected.

SAXIFRAGA RUDOLPHIANA COMPACTA.—It is well known to those who have considerable experience with Saxifrages of the oppositifolia section that they are somewhat difficult plants to flower well in many gardens. The necessary moisture is not always present in the soil or applied by the gardener, and as a consequence the blooms are mostly extremely few. In my garden, which has a very dry subsoil, this difficulty can only be surmounted by affording lavish supplies of water in spring and summer. Where water is scarce, as here, it is not always possible to afford everything the required quantity of water. I find, however, that the variety of *Saxifraga Rudolphiana compacta* is more accommodating than the other varieties of *S. oppositifolia*, and with a small amount of shade it will thrive and flower freely. I bought a plant some four or five years ago, and planted it on a terraced rockery with a north-west exposure; and on March 24 it was abundantly furnished with its purple-coloured flowers. I observe that *S. Rudolphiana* no longer ranks as a species, but is included among the varieties of *S. oppositifolia*—a decision with which one cannot quarrel, so closely do many of the Saxifrages of this class resemble each other. *S. Arnott*.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR MAY.

THURSDAY,	MAY 3	—Linnean Society, Meeting.
SATURDAY,	MAY 5	{ Société Française d'Horticulture de Londres, Meeting.
TUESDAY,	MAY 8	{ Royal Horticultural Society's Committee. Royal Gardeners' Orphan Fund (Annual Dinner at Cafe Monico). Paris Exhibition (temporary show).
WEDNESDAY,	MAY 10	{ Royal Botanic Society, Exhibition in Regent's Park.
TUESDAY,	MAY 22	{ Kew Guild Dinner, at the Holborn Restaurant. Paris Exhibition (temporary show).
WEDNESDAY,	MAY 23	{ Royal Horticultural Society's Show in the Temple Gardens, London (3 days). York Florists' Exhibition. Devon County Agricultural Society's Show, at Barnstable (3 days).
THURSDAY,	MAY 24	—Linnean Society (Anniversary Meeting).
FRIDAY,	MAY 25	{ International Congress of Horticulture and Arboriculture, at Paris Exhibition (2 days).
WEDNESDAY,	MAY 30	{ Somerset County Agricultural Association, Show. Bath and West and Southern Counties, Show at Bath (5 days).

SALES FOR THE ENSUING WEEK.

WEDNESDAY, MAY 2. — Gladiolus, Spireas, Begonias, Carnations, Tuberoses, Herbaceous Plants, Palms, &c.
FRIDAY, May 4. — Imported and Established Orchids.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick. — 51° 3'.

ACTUAL TEMPERATURES:—

LONDON.—April 25 (6 P.M.): Max. 48°; Min. 48°.

PROVINCES.—April 25 (6 P.M.): Max. 51°, off Irish Coast; Min., 41°, off Tynemouth.

The special meeting of the Royal Horticultural Society, held in the Drill Hall on Wednesday last, was well attended, and much interest was felt in the proceedings, but little or no fresh information, such as we thought might have been given in explanation of the policy of the Council, was afforded. The result was thus perhaps not quite what was expected, but it was satisfactory in the main, and though at times the debate was somewhat confused, all parties left in good humour after an exchange of compliments. How different the result was from the official programme may be seen from the perusal of the details given in the notice summoning the meeting:—

"(1.) To consider and sanction if approved (either with or without addition, omission, or alteration), certain new bye-laws rendered necessary by the Supplemental Charter lately granted to the Society.

(2.) To consider and adopt, if approved, the following resolutions, viz.:—

(a.) That in accordance with the recommendation adopted unanimously at the

Annual General Meeting to celebrate the Centenary of the Society by removing the gardens from Chiswick, this meeting adopts the proposal of the Council to purchase a freehold site in the parish of Limpsfield, in Surrey, and authorises the Council to take the necessary steps for acquiring the said site, and for developing new gardens thereon.

(b.) That this meeting authorises the Council to enter into negotiations with and to obtain the co-operation of the Board of Agriculture and Horticulture, the University of London, and the County Councils, with a view to the establishment in connection with or in affiliation to the Society, of a representative School of Practical and Scientific Horticulture; the scheme to be duly submitted to the Fellows for approval.

N.B.—The Supplemental Charter and the new Bye-laws will be printed in full in the next number of the Society's Journal, vol. xxiii, part 3. Fellows requiring an advance proof of the Bye-laws can obtain it on personal application at the Society's Office.

By Order of Council,
W. WILKS, Secretary."

Here were the results:—The President began by suggesting that the new bye-laws be taken as read, but this was immediately negatived, and after a short discussion it was arranged, on the proposition of Sir WILLIAM THISELTON DYER, that the consideration of these important matters should be postponed till the Fellows had had better opportunities of making themselves acquainted with their contents.

The way was then cleared for the discussion of the suggestions made in (2.) a. and (2.) b., in the course of which it was stated that the lease of the existing gardens at Chiswick has no fewer than twenty years still to run. We emphasise this point because up till this time we have been unable to elicit this information, and not a few of the Fellows were under the impression that the acquisition of the proposed new garden was rendered necessary by the speedy expiration of the lease at Chiswick.

The Council acted throughout on the assumption that they were bound by the resolutions passed at the annual meeting, but as the details of the proposed scheme were not then unfolded, and have even remained so till the present time, Mr. ELWES very properly held that the Fellows at least could not be held to have assented to matters of which they knew nothing. Moreover he hinted that the Council was not unanimous on the matter, alluding especially to Mr. ARTHUR SUTTON, who had resigned his membership of the Council for reasons connected with the Limpsfield site, which were not made public at the meeting, but which we think it important to publish in the present issue; and at the same time to suggest that Mr. SUTTON now withdraw his resignation, as his assistance at the Council would be very valuable.

Sir MICHAEL FOSTER spoke of other possible ways of celebrating the Centenary, especially by the erection or lease of suitable premises for the Society's meetings.

Although the discussion on the site at Limpsfield was declared out of order, considerable incidental reference was made to this, as we think, preposterous proposal, the most remarkable point elicited being the difference of opinion held by competent experts as to the nature and suitability of the site. Mr. ARTHUR SUTTON's report, as we have said, was not read, but as it can no longer be considered a confidential communication, we need no longer delay its publication.

On the receipt of this letter, the Council very properly appointed a strong committee, consisting of Messrs. BUNYARD, G. PAUL, POU-PART, and BECKETT, to visit the site, and report to the Council. They reported that the site and aspect were good, but that the land had been neglected, the drains were blocked, and that much labour would be required to bring the land into proper condition for a garden. It will be seen from this, that the diversity of opinion between Mr. SUTTON and the Council's referees was not so great in practice as it appears to be on the surface, as the result is virtually identical. In any case, we are not likely to hear any more of the ridiculous proposal to establish at great expense a garden in an inaccessible corner of Surrey, for the following resolution was put and carried by a large majority—"That this meeting confirms the recommendation of the Council made to, and adopted unanimously by, the annual general meeting, viz., 'that the Centenary of the Society be celebrated by removing the gardens from Chiswick, subject to the Council being able to find a new site which commends itself to the majority of the Fellows.'" The provisional clause, in which lies all the virtue of the resolution, was inserted on the proposal of Mr. H. J. PEARSON, and it has the great merit of providing a golden bridge for the Council in their future proceedings, and of disarming opposition.

In the course of the meeting many thanks were expressed to the Council for the trouble they have taken, and to Sir TREVOR LAWRENCE, for the tact he showed. As has often been the case before, he showed that he is not only Chairman of the Council, but the President of the Society, and the warmest thanks are due to him for his conciliatory and impartial attitude which brought what might have been an embittered meeting to a satisfactory close. One word more, much of this discussion would have been rendered unnecessary if the Council had been more communicative at the annual meeting, and less reticent afterwards. In these days the Fellows like to know exactly what they are expected to vote for.

Neglected Varieties of Pears.

It will be generally admitted by gardeners and amateurs having a fairly intimate knowledge of our hardy fruits, that some of the older varieties of the Pear are in point of productiveness, goodness of flavour, and ability to ripen perfectly in an average year in this country, the equal of many of the much-extolled newer varieties. Taking the best of the neglected Pears in alphabetical order, we have Althorpe Crassane, raised by T. A. KNIGHT, a dessert variety, with a rose-water flavour, of fine quality, a prolific bearer, and in season from October to December. The late Dr. R. Hogg, in his *Fruit Manual* says that it is "good as a standard, but the fruit is best from an east wall," and in this he is quite right, especially in the northern and midland counties; in fact, north of the Humber it is no good as a bush or standard. Ambrosia is a delicious dessert Pear, in season in September, with a sweet, tender, perfumed melting flesh; the tree bears well, and is a hardy vigorous grower. It has several synonyms, viz., Early Beurré, Orange Rouge, and Diel's Braunroth Pomeranzen Birne. Aston Town is a small dessert Pear of good quality, in season in the months of October and November. The tree succeeds almost anywhere as a standard, bearing as such abundantly in alternate years; the variety should be largely grown as a market or coster's Pear.



VIEW IN THE GARDENS OF BUCKINGHAM PALACE, TAKEN BY SPECIAL PERMISSION OF H.M. THE QUEEN.

Autumn Bergamotte was commonly found in orchards and gardens, being more adapted for planting in the former, owing to the large size the tree attains. It is of columnar rather than spreading habit of growth, and in good soils reaches a height of 40 feet; it is a nice flavoured fruit, $2\frac{1}{2}$ inches wide and high, that should be eaten from the tree or soon after being gathered. Flesh, greenish-white, tender, melting, very juicy, and richly flavoured, sometimes rather gritty at the core; it ripens in October. Bezi d'Hery, a fruit of medium size, being $2\frac{1}{2}$ inches high and wide, possessing a Muscat aroma, white flesh, of fine grain, and tender—a first-rate Pear for stewing. In use in October and November; it ripens its fruits perfectly in the south when grown as a standard or bush, but these come finer from a tree on a west or east wall. Bourré Langelier, a middle-sized pyriform fruit, with flesh melting and buttery, and vinous flavour, is in season from December to the end of January; it is a good variety for planting in the southern parts of the country. Broom Park is a small, roundish, obovate Pear, with a melting, sugary, and aromatic flesh. A good January Pear, bearing equally well on the Pear or Quince stocks.

Moccas, a fruit of medium size, irregular in outline, yellow fleshed, tender, melting, and of fine grain, with a rich musky flavour. In season December and January; raised by T. A. KNIGHT, and named by him after Moccas Court in Herefordshire. Muirfowl's Egg, an old Scotch dessert fruit, ripe in October, should not be omitted; it makes a good standard for the colder parts of the country. The flesh is somewhat buttery, tender, and sweet.

We ought not to omit Swan's Egg, an oval Pear, of good cropping properties, doing well on west or south-west walls; it has a piquant agreeable flavour, and melting flesh, and is at its best in the early winter months. Our experience shows that such Pears as Chaumontelle, Ne Plus Meuris, Monarch, Hacon's Incomparable, and the various Crassanes, do not meet with so much favour among south country gardeners as their merits deserve. Chaumontelle and the Crassanes are peculiarly Pears for the south, or for the south wall in northern shires, maturing their fruits in that position only in exceptionally warm summers.

Those two excellent varieties, Knight's Monarch and Chaumontelle, may be planted in the south, especially on the warm gravels of Surrey and Middlesex, as standards, perfecting their fruits in warm summers quite satisfactorily, although from lack of thinning when bearing abundantly, as the trees sometimes will do, the fruits are not so large as we are accustomed to see them when grown in the Channel Islands. Our purpose will have been served if these remarks bring to the notice of the younger members of the craft some of the good and trustworthy varieties among neglected Pears.

BUCKINGHAM PALACE GARDENS (see Supplement).—Few visitors to the grimy streets of London are aware of the beautiful landscape effects within the walls that encircle the grounds of Buckingham Palace. By special permission of HER MAJESTY, we were enabled to visit and take photographs of the grounds. Some of these we have already published. That which we now issue shows how well the Rhododendrons flourish in spite of the smoky atmosphere. They reflect credit on the care of Mr. STIRLING, the gardener in charge. We have little doubt that he would be glad if he received a little less assistance from the peacocks that abound in

the royal domain. Comparison with the Rhododendrons in Hyde Park, which are lovely in their season, is not legitimate, for while the shrubs at Buckingham Palace are mostly fixtures, those in the parks are to a large extent renewed every year.

LINNEAN SOCIETY.—On the occasion of the evening meeting to be held on Thursday, May 3, at 8 P.M., the following papers will be read:—I. "Note on the Movements in Fishes," by Prof. R. J. ANDERSON. II. "On New Species of Halimeda, from Funafuti," by Miss E. S. BARTON. III. "On West Indian Fungi," by Miss A. L. SMITH.

CAPE FRUIT.—The R. M. S. Co.'s steamer *Norman*, brought 2,025 boxes of Grapes, 151 of Plums, 11 of Pears, and one of Quinces—2188 boxes in all. Of Grapes the Raisin blanc was in splendid condition, and sold quickly at good prices, on an average 22s. per box. The other sorts did not arrive in an equally good condition, and suffered in price—though good prices ruled. Plums were in good condition, but rather small fruit, and sold at 7s. and 8s. per box of twenty-four to thirty. The Pears were in splendid condition, but only medium-sized fruits; they sold rapidly at good prices. The Quinces were a private sample, and it appears doubtful if a trade can be made for the fruit.

ROYAL BOTANIC SOCIETY OF LONDON.—The practical gardening school, held in the Society's gardens, Regent's Park, is officially recognised by the Technical Education Board of the London County Council. The course of instruction extends over three years, and the Society undertakes that each pupil shall receive instruction, and be given opportunities to practice the operations necessary in each branch of gardening. Examinations will be held and certificates granted, and at the termination of the course, every effort will be made by the Society to obtain situations for the pupils if required. Fees for the course: first year, £20; second year, £15; third year, £5. A syllabus of lectures for the session is now published. All fees to be paid in advance. Early application should be made to the Secretary, J. BRYANT SOWERBY, Botanic Gardens, Regent's Park. A limited number of boys are given a year's course in rough work and cottage gardening, suitable for those intending to emigrate; fee £15.

ELECTRO-HORTICULTURE.—For the past four winters the Cornell College of Agriculture has been carrying on a series of important experiments in electro-horticulture under the direction of Prof. L. H. BAILEY. The aim of these investigations is to study the influence of the electric arc lamp upon plants grown in greenhouses. During two winters the lamp was hung inside the house, and for a part of the time the light was naked, and at other times screened by a glass globe. Many of the plants were injured by the naked light, but sustained no injury, or were even benefited by the light, which was modified by passing through an opal globe, or even common glass. It was found that Lettuce was greatly hastened in growth by the light, and various flowers were earlier. Radishes were also much benefited by electric light passing through a greenhouse roof, and the only plant which gave a poor result under such modified light was the Cauliflower. The lamp used was a 10-ampere 45-volt Westinghouse alternating current lamp of 2000 nominal candle-power. It was hung over a house 60 feet long, and was 9 feet above the nearest point in the roof. Experiments have been made to test the influence of the colours of the spectrum upon plants, and it has been proven that lights of different colours exert decided influences upon Radish and Lettuce plants early in their growth. These differences, however, tend to disappear as the plants approach maturity. *Florists' Exchange*.

"GARDENING YEAR-BOOK," AND "GARDEN ORACLE," 1900.—One quarter of the new year has already passed, and by an unfortunate oversight we

have hitherto failed to make adequate mention of this useful little publication. It is never too late to mend. We apologise to our colleague of the *Gardeners' Magazine* for the delay, and we hasten to recommend what we used to know as the *Garden Oracle* to our readers. It is full of suggestions and hints, contains lists of newly-exhibited plants, a diary for recording gardening operations, in which much space is given to the Chrysanthemum, and a great variety of other information. From the reader's point of view, we must enter a protest against the obtrusiveness of mixing up advertisements with the text, instead of keeping them wholly separate. An advertisement is an advertisement, paid for as such, and occupying a particular place. To mix it up with editorial matter might raise a doubt as to the impartiality of the editor, whilst it certainly irritates the reader and would rather incline him to deal with some other and less obtrusive firm. The *Gardening Year-Book* is to be had bound for 1s., at the office of the *Gardeners' Magazine*, 4, Ave Maria Lane, Paternoster Row, E.C.

BULLETIN DE LA SOCIÉTÉ FRANÇAISE D'HORTICULTURE DE LONDRES.—This publication (issued from 66, Long Acre, W.C., and 10, Rue Gambetta, Tours), for 1899, is now before us. It includes a portrait and brief account of the work of M. G. NICHOLSON, and also a paper, by M. A. MÉNÉSIER of Kew, on the Temperate-house at Kew. Further short articles deal with:—Platyocentrum; les Gazons en Angleterre, Aniba perutilia, Cilelets, Dracena Sanderiana, Forçage du Lilas, Magnolia, Jardins Royaux de Hampton Court, and Culture en pots des Cannas; and there are the usual Reports and Lists of Members of the Society.

THE PRINCESS BEATRICE AT POWERSCOURT. On Monday, April 23, the QUEEN made her first excursion beyond Dublin. The Royal party started from the Viceroyal Lodge before midday, and went by train from Westland Row to Bray. At Bray the railway station and its approaches were crowded, and the streets decorated. The Princess HENRY OF BATTENBERG was met at Bray station by Lord POWERSCOURT, with whom she drove to his residence, Powerscourt, which should be well known to our readers from our references to and illustrations of its beautiful surroundings.

ROYALTY AND ROSES.—We hear that on Saturday, April 21, a large consignment of beautiful red Roses was, by command of the QUEEN, sent from the Royal gardens at Windsor to the Viceroyal Lodge, Dublin, for the use of HER MAJESTY and members of the Royal family on St. George's Day. Roses, principally red ones, were also much worn in London on April 23, and were sold in large quantities and very cheaply in the streets.

MICHIGAN BOARD OF AGRICULTURE.—The annual report of the secretary of the Michigan State Board of Agriculture and that of the Experiment Station from July, 1898, to June 30, 1899, is now before us. The report of the president of the college mentions the progress made as having been very satisfactory. The attendance was much larger than ever before, reaching 535 for the year. Of this number 192 were enrolled in the four-year agricultural course, 172 in the mechanical course, and 93 in the course for young women. In the department of horticulture and landscape gardening much satisfactory work was done, the practical and theoretical tuition being specially adapted to the successive seasons of the year during which it was imparted. The botany and forestry department, and the botanic garden have done well, though heavy losses were suffered in the latter from severe cold for two or three weeks, when there was very little snow on the ground. The *Forestry Bulletin* (No. 162), is of much interest for "the forests of Michigan have been one of the chief sources of the wealth of her citizens." Some valuable maps are given, and a paper by Mr. F. E. SKERLS on the present condition of Michigan forests and stump lands, with sug-

gestions as to their care; and another article, by Mr. W. J. BEAL (illustrated), on Methods of Reforesting Pine stump lands. Forestry Legislation is the title of another paper contributed to this Bulletin, and is by Mr. CLINTON D. SMITH. Among other communications to this volume are:—Strawberry Culture, by Messrs. L. R. TAFT and H. P. GLADDEN; Methods and Results of Tillage, Mr. M. W. FULTON; Michigan Fruit List, by Mr. L. R. TAFT; Notes from the South Haven Sub-Station; Vegetable Tests for 1898; Bush Fruits for 1898, and various papers connected with the live-stock of the State.

GOLDEN-GATE PARK, SAN FRANCISCO.—The Report of the San Francisco Board of Park Commissioners is an illustration of what skillful cultivation can do with apparently sterile ground. The Golden-Gate Park, lately a barren wilderness, is now tastefully laid out with lawns, shrubberies, and flower-beds, intermixed with ornamental waters and all the usual features of a pleasure park. In the Report before us, and that is illustrated with excellent colour-photographs, we read of fresh plantations of Cypress, Acacia, Pine, &c., on the higher ground, and Redwoods and Silver Firs in the hollows and more sheltered spots. "About two hundred trees of each variety have been planted in groups, so as to give a distinct idea of their characteristics when in a grove. Nature loves to mass her effects. For instance, the Digger Pine and Sugar Pine are never found in the same section. The Digger Pine thrives in the warm foothills, and seldom grows naturally at a higher altitude than 2,000 feet. The Sugar Pine, on the contrary, attains perfection in the higher altitudes. The belt between these levels is the natural habitat of the yellow Pine, which blends and mixes on the edges with the others, but each is to be found in solid groups in its own region. With the object of giving visitors to the Park in years to come, some slight conception of these trees as Nature masses them, this planting was made. At other places it is intended to set out single specimens in great variety, for purposes of comparison. On passing Broom Point is a grove of the black-budded Pine, *Pinus muricata*, then comes *Pinus Jeffreyana* from San Diego County, next *Sequoia gigantea*, following comes Cedars from Lebanon, and so on in succession." Round the lakes are, or will be set, indigenous trees, bushes, climbers; and the islands are to be planted each with different families of trees, one with Birches and *Rhododendrons*, another with Alders and Ferns, still others with Willows and Iris, and one with the Louisiana Swamp Cypress. In another San Francisco Park, Buena Vista, but little improvement has been made. Nevertheless we read that "many thousands of trees in great variety have been set out during the year," and these are from many different countries. It is intended to plant *Ceanothus* and *Romneya Coulteri* largely, as they are native and effective trees; and also the *Fremontia*, a Mallow with gorgeous masses of dazzling yellow flowers. A popular feature of the park is the "Old Japan" garden, with plantations, ponds, bridges, and tea-houses, all arranged in imitation of an oriental scene. The Report includes also a list of the trees and shrubs in the parks and nursery, and is altogether a very satisfactory record of progress.

THE KEW GUILD.—A friendly dinner has been arranged for May 22, at the Holborn Restaurant, London. The Director of the Royal Gardens, Sir W. T. HISSELTON-DYER, K.C.M.G., &c., will preside, and a large gathering of Kew gardeners past and present is expected. Members of the Guild may obtain information on application to the hon. sec. of the Dinner Committee, Mr. C. H. CURTIS, 68, Whitestile Road, Brentford.

PUBLICATIONS RECEIVED.—*Journal de la Société Nationale d'Horticulture de France*, Mars, 1900. This includes information concerning the Paris Exhibition, Group VIII., Class 47, and the Congrès International des Chrysanthémistes, as well as the Programme du Concours de Chrysanthèmes, to be held October 31; as well as other matter relating to the

Society. Portraits are included of President Payen and the Duc Decazes.—*Report on Natal Botanic Gardens and Colonial Herbarium for the year 1899.* By J. Medley Wood, A.L.S., Curator. This, the eighteenth annual report, is quite satisfactory as regards the progress made both in the garden and in the herbarium, although the latter being a wood and iron building, and of insufficient size, will, it is hoped, be before long replaced by brick (fire-proof) rooms of more convenient dimensions.

BOOK NOTICE.

THE MYCETOZOA, AND SOME QUESTIONS WHICH THEY SUGGEST. By the Right Hon. Sir Edward Fry, &c., and Agnes Fry. (*Knowledge* Office, 316, High Holborn, London).

We are afraid that the only question which the average gardener would trouble himself with would be how to get rid of the creatures which cause his

In this unpretending little volume, we find a lucid and excellent account of these creatures, which at one period of their life are plants, at another more like animals, but in any case and at all times of protoplasmic nature. Protoplasm and bacteria are among the great physical factors regulating the phenomena of life, and bacteria are but infinitesimally small masses of protoplasm. And so we are brought back to that slimy jelly of varying constitution and of marvellous properties which constitutes the foundation of all animal and of all vegetable life. The study of this substance in all its aspects, and under all practicable conditions, is, therefore, a matter of the utmost importance. The "myxias" offer facilities for this investigation, and present illustrations of some of the mysteries of life in a very simple and condensed form. We need not follow the authors in their clear explanation of the conformation of these creatures.

Simple as they are, or appear to be, there are specific distinctions among them, and these pieces of protoplasm have the power of distinguishing other pieces of plasm of their own species from similar morsels belonging to some other species. According to the best observers, union never takes place between "plasmodia" (for so are the masses of uncovered protoplasm called) of different species. How long will these humble creatures live? In seeking an answer to this question, we are staggered by the statement of Weismann that they are of unending duration. Continuity of protoplasm, if this be true, must be manifested in more ways than one. Fire, caustics, and other accidents may bring about death, but there is no natural death, but, on the contrary, a potential immortality! Thus, as our authors say, "out of the depths and first rudiments of organic life, there crops up a suggestion of that immortality which is the hope and aspiration of its very highest members."

Just as we can see no limit to their duration, so we cannot set bounds to their distribution. A large number of species are, says Mr. Lister, who has written an excellent monograph of these plants, "found with identically the same characters in Europe, India, the Cape of Good Hope, Australia, and North and South America."

What is implied, say the authors of the present treatise, "in the identity of a species in Australia and England?" Does it mean that the species have passed the great intervening oceans? Or does it mean that the species were defined before the separation of the continents, and have continued in both seats unchanged ever since?

There is a little defect in the logic of the statement that "Booksellers are often 'stupid' about getting it [Mr. Lister's book], as . . . they get no profit on it." In any case, we recommend everyone interested in life, its conditions, and manifestations, to read the present little treatise; the chances are that some of them will be led on to read Mr. Lister's Monograph, and his guide to the British Mycetozoa exhibited in the Natural History Museum, books which have been freely consulted with all due acknowledgment by the authors of this very seductive and suggestive little book."

THREE GOOD HARDY LILIES AND THEIR CULTURE.

THERE are too many varieties of Lilies and Daffodils in our gardens. Of the first-named there are three species which strike everyone who sees them, and that stand out in bold relief from all others, viz., the common white or Painters' Lily, *Lilium candidum*, *L. chalcedonicum*, scarlet; and the orange Lily, *L. croceum*. Then all three are so thoroughly hardy, although they have peculiarities. The Lilies differ greatly in their habits, so far as their propagation by division of the roots is concerned. *Lilium candidum* should be grown in pots, plunged in the ground, and left undisturbed, by those who grow it for sale. I should say a pot without a bottom would be best, as it would let the roots run out, while still keeping the bulbs together. None of the hardy Lilies suffer in



FIG. 85.—THE BADGE WORN AT THE FÊTE DES NARCISSES. (SEE P. 259.)

Turnips to club, destroy his Vines, and, like their near allies the fungi, make themselves generally objectionable. Such a man may be assured that until the nature and life-habits of these creatures are thoroughly investigated, there can be no such thing as cure. Empiricism and quackery must inevitably cause disappointment sooner or later. At present, though much is known about them, we do not know what they are—animals, or plants, or something betwixt and between. The latter conclusion is apparently that to which the authors have arrived, since they adopt a composite name for the group, indicative of fungal and of animal nature, though we must hasten to add that it was the exigencies of the title page which suggested the name, for we have not proceeded further than p. 2 when we find the pronouncement: "They are living things—and beyond that we will not go for the present." To gardeners they are perhaps best known as "slime-fungi," a term the authors object to, and substitute for it the fairy-suggesting name of "myxias."

removal so much as does *L. candidum*, except *L. chalcidonicum*. Leave the first of these two in any odd corner of a cottage garden till the bulbs become a mass as big as a man's head, jammed together as close as they can be, and it will continue to grow splendidly, and flower profusely for many years; but move it to separate the bulbs, with the object of increasing your stock, and the chances are that it will be years before you get good flowers. The first lot that I got for our herbaceous border I bought from a farmer's wife out of her garden. She did not know how long it had been there, and the root was a load for a man to carry in his arms. I divided the mass, and planted the bulbs with care at the right season, as I thought

besides the Lilies which appeared to have scattered themselves naturally from end to end of the row of cottages, as the masses were encroaching on the walks and through the paling to the roadside in the most irregular fashion. One may go far and not find such another mass even in a fine garden.

The *Scarlet Martagon*, *L. chalcidonicum*, is not so common, and I think there are inferior varieties. I ordered bulbs once, but none of them turned out true to name, and it was by mere chance that I got the gorgeous scarlet variety with its many lustrous flowers. One day, in Edinburgh, I saw a crowd round a window in Princes Street, and found that the attraction was a mass of the true *chalcidonicum*, nearly as much as a man could

border, or in front of a shrubbery, it is a telling subject, and continues to flower for about six weeks. It grows in any soil, and on any aspect. It has one fault. Pheasants are fond of it, and will not leave a root once they find it out in winter. I had hundreds of it at one time, and one season the pheasants nearly perished every bulb on a border 100 yards long. No one could have told where the roots were, because it is a Lily that likes to be well covered, and in our case the ground was smoothed and all stumps of old stems removed, but the pheasants smelt them, and merrily unearthed the roots and made solid meals of them. Only those who have had to put up with them know what a pheasant can do in a garden. Broad Beans, Peas, and such like, they simply clear out of the rows from end to end, unless the rows are protected; but the attack on the Lily was a new experience, and the curious thing was that I had it for years before they touched it. The other two Lilies named they do not touch, growing side by side. *J. Simpson, Sheffield.*

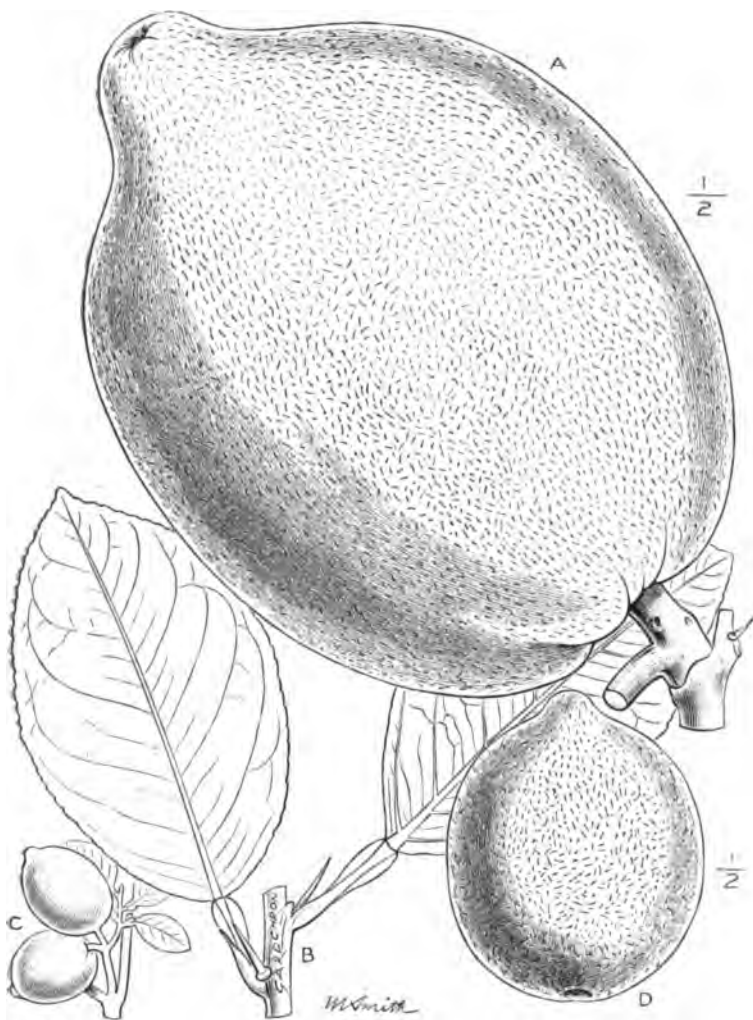


FIG. 86.—METFORD'S LEMON. NATURAL SIZE.

then; but it was years before the bulbs became established. The best time to lift the bulbs is just as soon as the flowers are over, when the leaves are still green, disturbing the bulbs as little as possible. The price of good bulbs of *L. candidum* is prohibitive, because the flowers are about as valuable in the market as those of *longiflorum* and its variety *Harrisii*, which they equal when well grown. I have located a stock in likely quarters. Last summer, when out one day in a limestone district, I saw afar off a mass of some white flower in front of a row of railway cottages, and on getting nearer I found it to be *L. candidum*—without exception the finest lot I have ever seen, whether as regards the vigour and height of the stems or the quality of the flowers. The gardens were anything but orderly, and contained little else

carry in his arms. It filled the window, and the mass of colour had attracted spectators. After the first two years I got a mass of it up; but like *L. candidum*, the less it is meddled with the better. It is altogether a weaker grower, and should be watched where it grows, so that the crowns may not be neglected or injured in any way.

Lilium croceum (*Orange Lily*).—This is a valuable variety, and very easy to grow. It is dwarf in habit, needs no stakes, flowers profusely, and may be transplanted and divided at any season of the year. Last year I transferred lots of it successfully from one garden to another in June, just before the buds expanded, and all the flowers came out well. The flowers are large and of a brilliant orange-scarlet colour. On a herbaceous

METFORD'S LEMON.

By the kindness of the Director of the Royal Gardens, Kew, we publish an illustration (see fig. 86) and particulars of the large Lemon, noted in these pages in January last (p. 59), as being in fruit in the Mexican-house at Kew, and exhibited at the Royal Horticultural Society on April 24. In January, 1896, Miss Laura Metford Badcock, Fens George, Taunton, forwarded to Kew a Lemon fruit as large as that here figured, and which had been grown in the garden of Mrs. Tucker at Leigh Court, Angers Leigh, Wellington, Somerset. Miss Badcock wrote:—"The history of the big Lemon is this: the original plant was grown from seed by my great aunt, Miss Metford, at Hook House, Taunton, in the very early years of this century, and was kept there till 1868, when the place was sold at my grandfather's death, and the plant given to a friend, who let it die. The present and only plant was grown from a cutting of that tree given by my grandfather, Dr. Metford, to Mrs. Tucker, and now owned by Miss Tucker, who sometimes gives us a Lemon from it. I will ask her to forward a few cuttings from the tree to you. My people were so proud of this tree that I should be glad if you could name it 'Metford's Lemon.' Shortly afterwards, Miss Tucker, when forwarding two cuttings from her tree, wrote: 'It had so many fruits in the past two years that it has not thrown much young wood. For want of space it had to be pruned.'"

The Kew plant is about 10 feet high, and it bears only two fruits, which are each 8 inches long and 6 inches wide. The leaves are equally large for a Lemon, being 8 inches by 4 inches; the flowers are white, tinged with rose. Botanically, the plant is undoubtedly a form of the true Lemon, *Citrus medica* var. *limonum*, but we have not been able to find any form exactly answering to it among the many described and figured in botanical works. The nearest is one figured in Dr. Bonavia's illustrated work on the Citrus family in India, under the name of "Kumaon" or "Gulgul" Lemon, which he calls the "elephant" variety of the Lemon group. That, however, differs from Metford's Lemon in its smaller fruits (13½ inches in girth), the roughness and wartiness of the rind, the "bronzy reddish-brown" colour of the flowers, and the wingless leaf-stalks.

When recommending the better sorts of Oranges and Lemons for cultivation in India, Dr. Bonavia says: "Lahore should give attention to the large sour and juicy Lemon known in the Punjab as 'Gulgul.'" In this connection we may mention that Mr. George Monro, of Covent Garden, to whom the fruit sent to Kew by Miss Badcock was forwarded for his opinion as to its usefulness commercially, considered it much too large to find a ready market.

The plant grows very freely when grafted on the

Pumelo, as may be seen by the size and vigour of the Kew specimen, which is only four years old.

As some experts who have seen the plant at Kew have called it a Pumelo, and others a large Orange, it may be worth while to state what are, according to Sir Joseph Hooker, the distinguishing characters of the three species into which the useful members of the genus *Citrus* group themselves:—*C. medica* (including Citrons, Lemons, sour and sweet Limes), young shoots glabrous, purple; flowers more or less pink. *C. aurantium* (comprising sweet, bitter, or Seville and Bergamotte Oranges), young shoots glabrous, greenish-white; flowers pure white. *C. decumana* (represented by the Shaddock, Pumelo, Grape-fruit, Forbidden Fruit), young shoots pubescent; flowers white. *W. W.*

THE WEATHER IN WEST HERTS.

THE warmest, driest, and most sunny week that we have as yet had this year. The 21st was a very hot day indeed, with one exception the hottest April day I have yet recorded here. To give some idea of its unseasonable warmth I may state that it was much warmer than an average day in July. The night temperatures on the other hand were, on the whole, only about seasonable. Consequently the difference between the lowest and highest readings in the thermometer screen was on several occasions considerable, and on the 21st amounted to as much as 38°, a range only once before exceeded here in April. The ground temperatures are rising rapidly, and at the present time are 4° warmer at 2 feet deep, and 6° warmer at 1 foot deep, than is seasonable. No rain at all fell during the week, and no measurable quantity of rain-water has come through either of my percolation gauges for several days. The air has been unusually dry, and on that hot day, the 21st, the difference between the readings of an ordinary thermometer and one with its bulb kept constantly wet, at three o'clock in the afternoon reached 18°, indicating a greater degree of dryness than on any April day for seven years. During the last six days the sun has been shining on an average for nine and half hours a day, or nearly double the mean daily duration for the month. A selected tree of Blackthorn first showed an open blossom on the 21st, which is ten days later than its average date of flowering in the previous nine years, and nineteen days later than last year. *E. M., Berkhamsted, April 24.*



HOME CORRESPONDENCE.

THE EARWIG.—That common insect the earwig, *Forficula auricularia*, is usually thought to be an unmitigated nuisance to the gardener. It is considered destructive to fruit, it damages Dahlias, and is [falsely] supposed to have a weakness for exploring the cavities of the human ear. Its scientific reputation is better; it is found to be carnivorous, preferring dead insects to fruit or vegetable-food, and it has the amiable habit, not hitherto observed in other insects, of brooding over and rearing its young. I have microscope slides in my possession which show the insect mounted whole. One of these shows the food in an undigested state, and I was surprised to find on careful examination and comparison, that the stomach was full of aphides (green fly or plant lice) in a more or less disintegrated condition. The identification was placed beyond doubt by the discovery of several of the characteristic tubes through which the aphids exude the "honey-dew." In another earwig I found the

scales of a Lepidopterous insect, together with remains of aphids in a more digested condition. It is well known that the earwig is nocturnal in its habits, and I would much like to know if any of your readers have actually seen the insect commit the damage it is usually credited with, as perhaps this may be another case of "giving a dog a bad name." In any case the earwig must do a certain amount of good by its destruction of the plant-lice, and ought to have a measure of that tolerance extended to it that is bestowed, or ought to be bestowed, on the Scurphus-fly, the ladybird, and the larva or grub of the lacewing-fly, on account of their habit of preying on these pests. *Walter Weschê, S. Hampstead.*

STEPHANOTIS FLORIBUNDA.—At p. 128 of the *Gard. Chron.* it is stated that it is not an unprecedented thing to see a ripe pod. And further, that the reason they are not seen oftener is probably due to the absence of the right insect to ensure pollination. Be that as it may, there is yet another and more practical reason against raising the *Stephanotis* from seed. I knew of a plant that fruited freely some years since on the back wall of a stove. The seeds grew, and the seedlings showed considerable variety, differing materially in size, form, and colour of foliage, and a few of them were more vigorous than the type. Some of them were grown for several years, but as none showed any signs of blooming, the whole of them were thrown away as being worthless. I have also heard of flowerless *Stephanotis*, or very shy-blooming ones in other places, and have suspected that they might also have been seedlings, for seeds have been less rare than is generally supposed. These would, doubtless, have been more grown had the tendency to revert to inferior types not been so persistently developed. The better strains have also been so easily propagated from cuttings that there has been no temptation to try seeds. In most of my seedlings, too, the leaves were narrower, longer, darker than in the best flowering types. The growth of some of the plants was also more vigorous than the best flowering varieties. Cultivators of this beautiful climber, find that it varies considerably in different gardens, much of which is due to culture, soil, &c.; still, not a little of the variation may be due to the variety. One of the first and finest plants of *Stephanotis floribunda* clothed the whole roof of a propagating-house which stood opposite to the packing shed of Messrs. Knight & Perry's Nursery (now Messrs. J. Veitch & Sons), in the King's Road, Chelsea; and I have seldom seen a finer, cleaner, larger, or more floriferous plant. The late Mr. Joseph Knight, the founder of the business, used to maintain his plant free from mealy-bug, and that charming and crowded roof of white clustered Wax-flowers, or Madagascar Chaplet-flowers, sold the plants in thousands. There are other and dwarfier varieties, and it would be interesting to learn whether the so called *Elvaston* and other varieties were seedlings or sports, or the results of selection. If I remember rightly, the *Elvaston* variety was described if not figured in the *Gardeners' Chronicle*, some years since [August 7, 1880, fig. 36]. It would also be interesting to hear if it has ripened seeds, and if the seedlings have reproduced its dwarf and floriferous characteristics. *D. T. F.*

SOME FINE LARGE RICHARDIAS.—Herewith I furnish you with particulars of two fine plants of *Richardias* *Elliotiana* and *Pentlandi*, which have both flowered with me this year. The leaves of the *Elliotiana* are most beautifully spotted with white, but those of *Pentlandi* show no spots at all, but are purely green, and this particular plant produced the same unspotted leaves last year. The colour of the spathe of *Elliotiana* is a rich yellow, almost golden; but *Pentlandi* bears a much larger although a paler spathe, but makes up for this want of colour by its great size, as the measurements will show. *Elliotiana*: flower-stalk, from rim of pot to apex of spathe, 4 feet 3 inches; length of leaf, 16 inches, and width 1½ inches; flower, 4½ inches diameter by 4½ inches diameter. *Pentlandi*: flower-stalk and spathe, 3 feet 10 inches; length of leaf, 17 inches, and width 10 inches; flower, 7 inches diameter by 6 inches diameter. Both plants are throwing up two strong suckers, which may bloom next year. I may remark that *Elliotiana* seems to have the power of self-fertilisation, as it fertilised itself last year and produced good seed from which I have many young plants,

and would have done the same this year had I not cut off the spathe. *O. O. Wrigley, Bridge Hall, Bury, Lancashire.*

THE RECENT HEAT.—When a wave of heat like that of July reaches this country in the middle of April, as was the case last week, things get a little mixed. I found it so; for one day the wind was so bitterly cold that overcoats needed close buttoning, the next day was so hot that any sort of clothing was a burthen. No wonder vegetation moved rapidly, flowers and tree-leaves expanded with remarkable rapidity. Happily the untimely heat was not of long duration. Acceptable as it may be in July, it is not welcome or desirable in April, and it is fervently hoped that we may not have to pay a penalty for such unseasonable warmth now by an equally undesirable accession of cold in May. Naturally for all gardeners, and especially fruit growers, the present is an anxious time. We see on every hand promise of a magnificent bloom, and we fear lest some cold wave should injure much of it. May we be spared from such a calamity. We can do nothing to prevent it, therefore human skill cannot avert evil if it comes. Nothing would so much help to save from such injury as a soft, dull, showery time. *A. D.*

WASPS.—Whilst the advent of the swallow, nightingale, and cuckoo usually furnish material for newspaper paragraphs in the spring, the advent of the wasp finds little comment. And yet to the gardener there are next to the sparrows no worse plagues than wasps. Doubtless the queen wasps have been observed in some numbers at Kingston-on-Thames. Some very fine examples were destroyed on the 19th and 20th inst.; but how numerous must these be in country districts, unnoticed and uncaught, whose progeny will work havoc this year in orchard and garden. *D.*

THE TEMPERATURE OF THE AIR AT ISLEWORTH.—To-day (April 21) I have registered here a screen max. temp. of 81°. This is the highest April reading in my records, going back twenty years. The next highest was 77° in 1893. In this respect I may note that during hot weather in the spring, the maximum readings at Isleworth are always a few degrees higher than in London, but that in the early autumn the reverse is the case. I trace this to the number of buildings in London lowering the temperature of the surrounding air, whilst they are the recipients of atmospheric heat in the spring. In the early autumn or late summer, the evaporation of dew from the grasslands, and of moisture from the leaves of the many trees about Isleworth, would account for a similar reduction in heat. Naturally we experience here a much greater diurnal range of temperature than in London. The somewhat clearer air allowing of freer terrestrial radiation, and the lighter soil parting more readily with its contained heat. *A. Worsley.*

PALMS.—I have read with interest the article written by Mr. Proschowsky on the age of Palms, &c., in which the writer seems to doubt the age of the *Archontophoenix Cunninghamiana*, which was figured in the *Gardeners' Chronicle*, and appears to despair of ever seeing his own grow to specimen size. At the same time he asserts his knowledge of the growth of plant-life in Southern California, but I would like it to be known that California differs in climate every 25 miles, and that Santa Barbara and its suburb Manticito is particularly favourable to the growth of Palms and plants generally. I quite agree that it is advisable to plant good sized plants, but it is not absolutely necessary to do so if the ground is good, and the climate favourable. A man can during his life take the seed, sow it himself, and see his plants grow into specimens before he is fifty years of age. Mr. J. Sexton has sown all his Palms himself from seed, and after selling the large plants as they came along out of his nursery, he has the place covered with very large specimens, all matured in thirty years, from the seed. He has *Washingtonia robusta*, 10 feet 6 inches in circumference and 20 feet in the clear trunk; *Erythea edulis* and *Erythea armata*, are 9 feet in circumference, and 5 feet in the clear trunk, with sixty to seventy leaves; these two are eighteen years from seed. *Phoenix dactylifera*, twenty-five years from seed, is 18 feet in the clear trunk; *Chamerops excoela* and *C. nepalensis* are 14 feet in the clear trunk in sixteen years, and

Phoenix canariensis, in fifteen years, is 18 feet in circumference and 4 feet in the clear, with 130 healthy leaves, and many others with as good a record. Now this we all must admit is wonderful growth, but at the time the Palms were sown and planted, flower-pots were very expensive, and therein lies the secret to this fine growth. I find in actual practice that if a Palm is stunted during the first two years of

here, not 10 feet from tide-mark, a row of *Washingtonia filifera*, with nothing but red-sand to grow in, and they are making wonderful growth, and I have seen the waves at high tide wash their trunks. *W. H. Morse, Santa Barbara, California, U.S.A.*

ÆGLE SEPIARIA.—A leaflet having for title "The hardy Japanese Lemon-tree," is now before

Lemon blossoms is for countless of our fellow creatures the essence of the south, of the south with its sun and its healing power." No botanical name is given in the leaflet, but it is obvious that the plant in question is *Ægle sepiaria*, also known as *Citrus trifolia* and *C. trifoliata*. *Ægle sepiaria* is hardy enough in the south of England at any rate, but it fruits rarely enough near London, the only fruiting

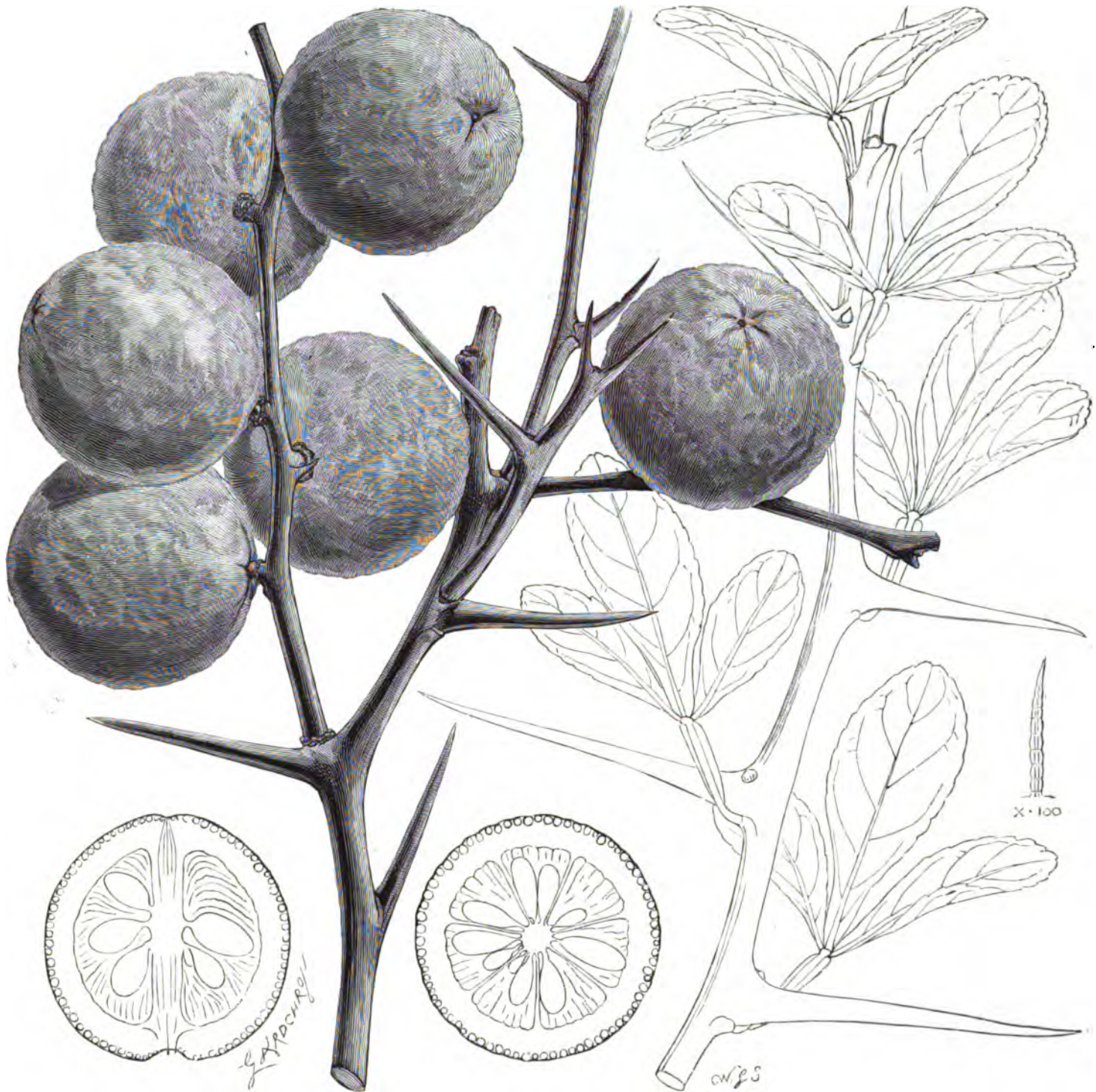


FIG. 87.—*ÆGLE SEPIARIA* (*CITRUS TRIFOLIATA*): A HARDY ORANGE.

its life, it throws it back and does not recover for two years; and sometimes it drags out an existence for five years before it makes any attempt at a healthy growth. Palms want abundance of water when planted out, good drainage, and sandy or gritty soil. Some kinds will thrive in clear sand, for instance. There is planted out along the coast-line

me; the opening paragraph is as follows:—"Know'st thou the land where the Lemons bloom? How often does this refrain recur in the songs and wishes upon young mouths and still younger? How often, weary and heavy laden, do the tired-earth pilgrim yearn to that land where Lemons flourish. The fragrance of the

specimens I myself have seen in this country were grown in Canon Ellacombe's wonderful garden at Bitton. But in central and southern France the species thrives amazingly; the fruit is however small and bitter, and is generally considered worthless. In the "Hybrid Conference Report" recently published by the Royal Horticultural Society,

Mr. Herbert J. Webber gives a most interesting account of the results of the work of the United States Department of Agriculture on Orange Hybridisation, the aim being to get the hardness of *Agile sepiaria* into *Citrus aurantium*. *George Nicholson, Royal Gardens, Kew*. [A visitor from New Zealand informs us that this plant is not only used as stock for Oranges and Lemons, but also as a preventative of the "collar rot" of Lemons. It is not a dwarfing stock, but seems to increase the productiveness of the Lemon. Ed.]

HYBRID CINERARIAS.—In a very interesting paper on "Hybrid Cinerarias," in the *Hybrid Conference Report* (p. 269), Mr. Lynch doubts the identity of the recently introduced *Senecio cruentus* with the original plant, remarking as follows:—"Senecio cruentus (*Hort. Kew*, non D.C.)—It is important to note that the above cruentus, familiarly known as 'Kew cruentus,' can only be called cruentus by taking the broad view to which botanists are sometimes liable. There are several important differences, inasmuch as I find it a very invariable plant, only kept through the winter with great difficulty, comparatively colourless in its nature, and so poor in attractive qualities that my judgment revolts against the idea that any florist ever took it in hand to improve it. No florists' flower ever originated from a plant which had not already much to recommend it. With this plant, however, work has been done, and also much written, perhaps upon the assumption to which I entirely demur, that it is at all a cruentus in this connection. It is quite an unfair assumption, I believe, to both sides of the question, as to the origin of the florists' Cineraria, and I may perhaps be allowed to make a friendly protest against the disregard of the botanist for differences which are great to the horticulturist. Very valuable is the work of the botanist with books and dried plants, but I deplore the practice of merging under one name and without distinction plants which are absolutely different and distinct, and actually known not to be identical." Now there are two or three points here which require to be cleared up once for all. In the first place, the so-called "Kew cruentus" is a wild Canary Island species, of which seeds were sent home some years ago, and its identification should present no difficulty. It is obviously either true cruentus, or one of the few other known Canary Island species, or an undescribed one. That much is certain. The history of *Senecio cruentus*, D.C., is briefly this: It is the Cineraria cruenta of L'Héritier (the change of name arose through the discovery that it is, technically, not a Cineraria, as was at first supposed), and our knowledge of the species is concise. It was originally described in 1788 by L'Héritier (*Sert. Angl.*, p. 26, t. 33), from plants which flowered at Kew, these having been grown from seeds sent from the Canaries by Francis Masson in 1777. The figure is unmistakable, and there are also specimens in the Kew Herbarium, which were preserved by Bishop Goodenough, and as these were obtained from Kew their identity is certain. It was also figured in the *Botanical Magazine* (t. 406) in 1797; Andrews' *Botanical Repository* (vol. i., t. 24, as *C. aurita*), in the same year; and in Ventenat's *Jardin de Malmaison* (t. 99), in 1803. There are also old garden specimens from various sources dated 1810, 1811, and 1818. These all represent one and the same species, with tall, loose habit, and very numerous small self-coloured flowers. They also agree with wild specimens from Teneriffe, and with the so-called "Kew cruentus," re-introduced from the Canaries a few years ago. A comparison of living specimens with old figures, and of recent dried specimens with ancient ones, leaves no doubt as to this point. Not one of them, in my judgment, shows any appreciable departure from the wild type, or any distinct progress towards the florists' Cineraria of to-day. The "original cruentus" worth the first notice of the cultivators," which Mr. Lynch speaks of would be an improved race, and only a cruentus in a broad sense, as Drummond's "cruentus" may have been too. *S. x hybridus* had already appeared spontaneously from cruentus seed, and Mr. James' experiments suggest that it may appear wherever *S. cruentus* and *S. Heritieri* are grown together (see *Gardeners' Chronicle*, 1898, xxiv., pp. 101-102). But whatever the first steps in the improvement of the florists' Cineraria may have been, the original starting-point was *S. cruentus*; and if *S. x hybridus* is in the direct line of descent, as seems highly probable, it is also a long way behind the finished

product of to-day, which is the result of the selection of slight improvements during numerous generations; and Mr. Lynch never need expect to reproduce it by simply intercrossing the wild species without selection. *R. A. Rolfe, Kew*.

TOMATOS IN FORMOSA.—Respecting the article on Tomatos by Mr. J. Lowrie in the *Gardeners' Chronicle*, March 10, p. 149, I may say that when I was in Formosa, about twenty years ago, I walked round the walls of the city Taiwan-foo, South Formosa, and found Tomatos wild, hanging from the old brickwork of the decaying walls; also large masses of Heliotrope with them. This was the only place in which I ever saw these plants growing wild. They might have been introduced by the old Dutch, who had a fort and settlement a few miles away on the sea-coast. *C. Maries, Gwalior State Gardens, India*.

A USE FOR SMALL POTATOS.—Formerly it was a common practice to plant the smaller tubers—those which the gardener considered too small to plant for a crop for consumption, on a bit of good land in drills made at 1½ to 2½ feet apart, and 3 to 4 inches deep, or in basin-like hollows of that depth, and 1 foot apart. Earthing up might or might not be done, for it was a matter of indifference whether the tubers got greened by exposure; the only use they were put to being, so far as regarded the bigger ones, to plant another year. By this method the stock of planting sets was greatly increased; the produce was left in the ground till quite mature, as is not the case with the earlier part of a crop dug for daily consumption, moreover a lesser proportion of the edible crop needed to be put aside for "sets." It may be supposed that this practice still finds favour with some gardeners, but it is not very general. *M. E.*

THE NEW CHISWICK.—I have very carefully examined the site with the plan. In view of the fact that this site is recommended by others who have seen it, I feel most reluctant to offer any adverse opinion. In the first place Oxted itself cannot be said to be inaccessible from London, as several trains make the journey in from forty-five to sixty minutes, and if any good site had offered at Oxted, it might have been as suitable a locality as many others. The case is altogether different when we find that the site itself is from 2½ to 3 miles from the station, and the road so hilly that a cab takes twenty-five minutes to cover the distance. This alone means that every ton of building material, or coal, or coke, or manure, would cost 2s. 6d. or 3s. to cart from the station. I was nearly twenty-five minutes driving with a fairly good horse to the Charing Cross Home, and more than twenty-five minutes driving back from the southern end of the land. But possibly this might not be considered a very serious objection if the land itself were suitable for gardening operations. It is in this connection that I feel bound to offer the very strongest protest I can against the scheme. Although the weather was wet in town, it was fine at Oxted; and apart from some rain yesterday they had but little or no rain for some weeks past; notwithstanding this, I found the whole 50 acres, except the Hop-garden and the upper portion of the field adjoining (No. 311a), very wet and sodden; when after the drying winds we have had, it ought to have been in fair working order. No doubt the upper portion of field No. 311—say about 4 acres—might be worked fairly easily, and as its tilth was satisfactory, a seed-bed for corn or other crops might be formed soon. All the rest, however (311b), below the brow of the hill was a cold, heavy, sticky soil; and as the plough turned it up, the furrows had that pale yellow-and-white appearance so characteristic of unhealthy and unproductive clay-land. When I mention that it is "four-horse" land, and that four horses could with difficulty draw the plough, it will be understood what I mean. The furrows turned up presented a hard, sticky surface, which it would take weeks to render fit to take any crop, and the man at plough said it always took four horses to work. The Hop-garden (field No. 310) is very strong land, and may grow Hops well; but even so, it is not to be compared with the rich, deep, friable Hop soils generally found in Kent and Surrey. The land under grass (about 17½ acres) I am confident can never be tilled except at a great loss, and certainly could never be made good garden soil. I made a close examination of each grass-field. The only one with anything approaching a good turf—i.e., turf which indicated useful grasses—was No. 324.

This, however, although on rising ground, was as wet as a sponge, even in its higher portions, and I consider the soil is so retentive in character that no amount of drainage would enable the finer grasses to become permanent. As it is at present, moss is found all over the field—a sure indication of excessive and stagnant moisture. Fields Nos. 323 and 342, though not now flooded, must sometimes be liable to flood. Water now stands on them in places, and several furrows in each field are full of water. So completely water-logged are these two fields that the grass has assumed a rusty-brown colour, due to excess of stagnant water, and both fields, but especially No. 323, are covered in places by a growth of rushes, also due to being water-logged. The only portion of field No. 323 where the grass is fairly good is marked "C" on the plan—about ½ of an acre. The remaining two fields (Nos. 343 and 344) are only suitable for Wheat, and then only in a hot dry season. On No. 343 is a very thin plant of Wheat, and its thinness is due probably to the wet weather of January last. No. 344 is a Wheat stubble, exceedingly foul, and with a very scanty plant of Clover. Even if these two fields were likely to prove good garden soil, they are too far removed from the best portion of the land at the top of the hill to be conveniently tilled. As a matter of fact, the elevation of the land is such that the grass-fields form a natural basin or reservoir, where the water from the surrounding hills collects, and, having no outlet, becomes stagnant and sour. From my knowledge of the value of land in other counties, I am confident that for agricultural purposes all the fields comprised in the 50 acres, with the exception of the Hop garden and the upper portion of No. 311, would be dear at anything over £35 per acre. I understand the scheme has recently been modified, in so far that it is not now proposed that the Royal Horticultural Society should purchase the Carlton Home, or attempt the formation of any horticultural school. Were it otherwise, I should think the £3,500 named as its price quite £1,000 too much, whatever it may have cost to build. I have only seen two sites. Oxted is one I feel bound to oppose most strongly, whether as a member of Council or as an ordinary Fellow, and I feel sure that any expert authorities, such as the agricultural professors at Cirencester or Downton, would agree with the opinion I have given above, as would also any market-gardener who cultivated for profit. If samples of soils are to be taken for analysis, I would suggest that someone conversant with the methods usually followed be employed to take the samples. Very few fields are alike in all parts, and three or four samples from each field would be needed to obtain any reliable data. Those accustomed to soil-analysis would take samples from the most dissimilar portions of each field, as by this means only can a true estimate be obtained. But whatever the result of the analysis may be, the natural formation of the land at the foot of the hills, especially of the meadows, at Oxted is such that it can never become garden soil—of even fair quality. I do not wish for a moment to place any hindrance in the way of the council in carrying out well-considered schemes, and, rather than do so in the present instance, would readily resign my seat. In fact, such a course seems inevitable if the council adheres to the resolutions passed on Tuesday last, unless I propose an amendment to the meeting to be held on the 25th inst., which I should be very unwilling to do. But for the importance of the matter at issue, I would sincerely apologise for presuming to occupy the time of the council with this letter, the writing of which at best is a most unpleasant duty. I am aware that as the option to purchase is for a limited time only, and a general meeting is summoned for the 25th inst., the council is placed in a somewhat difficult position. In view of the fact that it is the centenary of the society we are proposing to celebrate by a scheme which is to be permanent in character, I would suggest that two duly qualified and experienced land agents or surveyors be appointed immediately to examine the fifty acres at Oxted, and report upon the fitness or otherwise of the soil for the purposes of a Model Garden of Horticulture. The surveyor should also be instructed to determine the actual value of the land for agricultural or horticultural purposes, as it is obvious that the fancy prices obtainable for building sites on the crest of the hill, are no guide whatever to the value of the 50 acres in question, all of which lie below the hill-top, and afford no site for building unless it be for a modern farmhouse to take the place of the primitive and more

or less dilapidated buildings and cottages now standing. The following land agents and surveyors are men of wide experience and of high standing in their profession: Messrs. Rawlence and Squarey, 15, Great George Street, Westminster, S.W.; and Messrs. Clutton, 9, Whitehall Place, S.W. It may be technically correct to say that at the annual meeting, the Fellows, by adopting the report, committed the Society to the formation of a new garden as the best means of celebrating the centenary, but if so, I am confident that few, if any, of those present thought for a moment their vote would have this result. I very much doubt whether many Fellows could be found who considered the purchase and laying-out of new gardens the fittest and most useful way of celebrating so important an event. There has been very little time at recent Council meetings for the discussion of the "new gardens," and perhaps this is why the Council as a body are entirely in ignorance as to how these gardens, if obtained, would be worked or organised. If the new gardens were managed on similar lines to the present gardens, where the work consists chiefly of trials of at least doubtful utility, and the cultivation of large quantities of Grapes and other fruits which are marketed, I do not hesitate to say that the result would not be worth the outlay. The present Chiswick Garden costs £1400 a year to maintain, and the new one would, of course, cost double or treble this amount. I venture to think that no adequate results could be obtained from the new gardens unless placed under an experienced director equal in technical horticultural knowledge to Mr. Jas. Hudson, Mr. Owen Thomas, or Mr. G. Wythes—men who, though loyal to any expressed wish of the Council, would be sufficiently independent to initiate and carry out work which it is impossible for the Council itself to find time even to suggest. It may be objected that these are matters of detail, but, unless the Fellows are assured that the Council are prepared to organise the new gardens on a totally different system to that at present adopted, it is very unlikely their support can be secured. Supposing that instead of the garden it was desired to celebrate the centenary by providing a large horticultural hall, with committee rooms, offices, &c., would not the £3,000 or £4,000 a year, which the new gardens must in any case cost to maintain, provide the interest for the capital which might be borrowed for erecting the hall?

(1) I cannot think that the purchase of a new garden is the best means of celebrating the centenary of the Society; and (2) that if any new gardens were considered necessary by the Fellows, the Oxted site is one which, in my opinion, is extremely unsuitable, and certain to involve the Society in a very large outlay, for which there will be no adequate return; (3) and further that as the centenary will not take place until 1904, it is unwise to decide so hurriedly on any site at the present time. *Arthur W. Sutton.*

SOCIETIES.

NATIONAL AURICULA AND PRIMULA.

At the luncheon which followed the awarding of the prizes on the occasion of the Annual Exhibition of the above Society, general testimony was borne that the quality of the Exhibition was much higher than was generally expected. The month of March and the opening week of April proved most retarding; happily, a few days before the exhibition there came a burst of summer heat, which had an astonishing effect upon the flowers, bringing them on with singular rapidity, though some of the plants had to be staged with little more than half-developed pipes. Let the season be what it may, the Auricula growers are equal to the occasion, and the fine old flower is seen in character, capable of commending it to its admirers. As is usual, the space at the disposal of the Society was inadequate, and the classes were much cramped, in consequence a much better method of naming the exhibits is necessary, for it is extremely difficult in the case of a few of the classes for anyone to gather the names of the varieties staged in them. Wooden labels stuck into the pots at the backs of the plants is a practice certainly capable of great improvement.

Show Auriculas.—There were five entries of twelve varieties, the 1st prize going to Mr. J. DOUGLAS, Great Bookham, who had strong and healthy plants, carrying bold trusses of bloom. Of green edges there were Shirley Hibberd (Simoneite) with about a dozen finely-expanded pipes; a little coarse yet massive Mrs. Henwood and Abbé List; grey edges, George Lightbody, Olympus, having something of the character of the preceding, but with mealed foliage. Perseverance

(Sander's), a pleasing grey; and Marmion, white edge; Acme and Magpie, self; Raven and Cleopatra, these being the pick of the collection. Mr. W. SMITH, Bishop's Stortford, who has gradually come to take a high position as an exhibitor, had as his best flowers, Mrs. Henwood and Abbé List representing the green edges; greys, George Lightbody and Rachel; white edge, Mrs. Dodwell, and self, Cleopatra. Messrs. PHILLIPS & TAYLOR, Auricula specialists, Bracknell, were 3rd; green edge Shirley Hibberd was small, but correct; Miss Barnett and Mrs. Phillips are two finely-formed selfs of decided promise.

With six varieties, Messrs. PHILLIPS & TAYLOR were 1st; they had good examples of green edges, Mrs. Henwood and the Rev. F. D. HORNER; grey edge, George Rudd; white edge, Acme; and their two dark selfs just mentioned. Mr. H. SMITH, who was again 2nd, had John Hannaford, which has the fault common to other Auriculas, of the body colour running out and flooding the green margin; grey, George Lightbody; and selfs, Ruby, red, and Black Bess. Mr. A. R. BROWN, Handsworth, Birmingham, was 3rd. There were four exhibitors.

In the class for four varieties there were six competitors, Mr. P. HENNELL, Winchmore Hill, being awarded the 1st prize; he had the Rev. F. D. HORNER, green edge; George Lightbody, grey edge; Acme, white edge; and Horner's Heroine, self. Mr. J. T. BENNETT-POE, Ashley Place, came 2nd; he had two good grey edges in Richard Heady and William Brockbank; Mrs. WHITBOURN, Great Gearies (Mr. W. J. EUSTON, gr.), was 3rd. With two varieties, Mr. J. PARSONS, Woodley, Reading, was 1st; he had George Rudd, green edge, and Heroine, self; Mr. BENNETT-POE was 2nd, and Mrs. WHITBOURN 3rd.

Next followed the classes for single plants, and the order of quality was as follows:—Green edges: Prince of Green, as far as we could see, the only plant of this variety in the show; Mrs. Henwood, and the Rev. F. D. HORNER. George Lightbody was at the head of the grey edges, followed by George Rann and Rachel. Mrs. Dodwell led the white edges with Heatherbell and Dr. Kidd. Mrs. Potts was at the head of the selfs, Black Bess and Heroine succeeding.

There were three collections of fifty Auriculas, and here Mr. J. DOUGLAS took the 1st prize with all show varieties. There were examples of such leading green-edges as Abbé List, Greenfinch, Rev. F. D. HORNER, Mrs. Hanwood, and Shirley Hibberd; grey edges—Olympus, Ringleader, and Col. Champneys; white edges—Frank Simoneite, Perseverance and Acme. Selfs, Fanny Glass, Andrew Mellet, and Black Bess. Messrs. PHILLIPS & TAYLOR were 2nd; they also had a good representative collection; and Mr. PURNELL-PURNELL, Streatham, was 3rd, but with some varieties lacking in development.

Alpine Auriculas.—These were shown in fine character, but the tendency towards size in the new seedling varieties makes us sometimes fear it is at the expense of refinement. Another point in danger of being lost sight of, from the florists' point of view, is the necessity for proper proportions between the diameter of the centre and the breadth of the margin. There are now very few indications of the notched segment, and it is time it was made a disqualification. There were five exhibitors of twelve varieties, the 1st prize going to Mr. J. DOUGLAS, who had some finely developed varieties of gold centres. These were Duke of York, very fine; Trilby, Dean Hole, Herald Warrior, Minerva, and Lord Dudley; of white centres, Mrs. H. Turner and Boadicea. Mrs. WHITBOURN was 2nd, mainly with some promising varieties raised by her gardener, Mr. Euston, and in addition Dean Hole, Perfection, and one or two other standard varieties of his seedlings. Rosy Morn, Lord Roberts, and Hector, are highly promising. Messrs. PHILLIPS & TAYLOR were a good 3rd. Mr. DOUGLAS was also 1st with six specimens, having in fine character Duke of York, Warrior, Zingara, Perfection, Firefly, and Deference, white centre. Mrs. WHITBOURN was again 2nd, Rosy Morn, Dean Hole, Innocence, and The Bride, showed fine development. Messrs. PHILLIPS & TAYLOR were 3rd. With four varieties, Mr. R. HOLDING was 1st, he had Dean Hole in good form. Mr. J. T. BENNETT-POE was 2nd here again, Dean Hole was prominent.

In the class for single plants of gold centres Mr. DOUGLAS led the way with Duke of York, which some regard as an improvement upon Dean Hole. Messrs. PHILLIPS & TAYLOR, came 2nd with Mr. Martin Smith; Mr. PURNELL-PURNELL following with Dean Hole. The best white centred alpine was Mrs. Harry Turner, from Mr. J. DOUGLAS; Mrs. WHITBOURN came 2nd with a very promising variety named Constantia, having a bright cherry-rose shading, and was 3rd with Bellona.

Premier Auriculas.—The premier show Auricula was Mrs. Henwood, green edge, in Messrs. PHILLIPS & TAYLOR's collection; and the premier alpine was Ziska, golden centre, shaded with orange-salmon, from Mr. J. DOUGLAS. This was also awarded a Certificate of Merit.

Fancy Auriculas.—There were two collections of twelve varieties, that from Mr. DOUGLAS maintained in the best character the golden-ground varieties with bright green edgings we have been accustomed to see. Mrs. WHITBOURN came 2nd with some rather inferior forms.

Primroses in collections of twelve pots were, as usual, effective and bright, Mr. J. DOUGLAS taking the 1st prize with a good collection. The class for six double varieties brought no entry.

Species of Primulas.—The best collection of twelve pots or pans of these came from Mr. PURNELL-PURNELL, Streatham Hill, who had P. obconica, P. denticulata and its white variety, P. floribunda, P. verticillata, P. Sieboldi, P. pedemontana, P. mollis, P. rosea, P. Auricula, &c.

Mrs. WHITBOURN, Great Gearies, came 2nd, having good examples of P. obconica, P. intermedia, P. floribunda, P. verticillata, P. denticulata, &c.

Polyanthuses.—These were shown in collections of twelve pots, Mr. J. DOUGLAS leading the way with bold and striking masses of colour, yet leaving something to be desired in the way of quality. Col. DIXON, Astle Hall, Congleton, had twelve plants in a basket, bearing trusses of bloom of large size, but with a tendency to coarseness; Messrs. HOUSE & SON were 3rd. Baskets of Primroses were ready filled with Polyanthuses. Mr. J. T. BENNETT-POE had a basket of plants of fine quality, in which yellows largely preponderated; Mr. J. DOUGLAS came 2nd, with a very showy contribution. A smaller basket, containing the bright red Miss Massey, was very showy.

New Auriculas.—There were no new show Auriculas staged for prizes, but some new alpine put in an appearance. The best new gold-centred alpine was Ziska, from Mr. J. DOUGLAS, remarkable for its refinement and the rich gold of its centre. Messrs. PHILLIPS & TAYLOR had a 2nd prize for a seedling of a somewhat changeable character. In the class for a new white centre, Mr. R. HOLDING was awarded a 1st prize for Ethel Brown, a very pretty variety; and he took a 2nd prize for Prudence.

The GUILDFORD HARDY PLANT NURSERY had baskets of fancy and Alpine Auriculas, Alpine types, Primroses, &c., a very interesting exhibit, but not for competition.

THE NURSERYMEN, MARKET GARDENERS', AND GENERAL HAILSTORM INSURANCE CORPORATION, LIMITED.

The fifth annual general meeting of the above Corporation was held at the new offices of the Corporation, 41 and 42, King Street, Covent Garden, London, on Tuesday, April 24, 1900. Mr. H. B. May presided (in the absence of Mr. Harry J. Veitch, who was in Palestine), and there was a good attendance of shareholders. The Chairman gave some interesting figures, showing the growth of the premium income, and business, as follows:—

Year.	Policies in force.	Premium Income.	Square ft. covered.	Value Insured.	Claims Paid.
		£ s. d.		£ s. d.	£ s. d.
1895-6	235	681 1 9	10,408,161	155,215 16 0	283 17 4
1896-7	316	889 11 6	13,886,005	179,866 11 1	NIL.
1897-8	550	1,360 17 0	20,098,104	263,590 19 1	1,531 17 5
1898-9	749	1,736 0 6	25,619,760	343,439 7 8	NIL.
1899-1900	825	1,982 0 1	28,855,076	391,322 15 4	NIL.

The working expenses had been reduced from £40 10s. 3d. per cent. of the income in 1895-6, to £18 3s. 6d. per cent. in 1899-1900. The report was unanimously agreed to, as was the recommendation of Directors, that a dividend at the rate of 5 per cent., and a bonus of 2½ per cent. per annum be paid, and that £800 be placed to Reserve Fund, and the balance, £375 10s. 4d., carried forward. A further issue of 5,000 shares of £5 each had been made at a premium of 4s. per share. The issue had been more than subscribed for, and applications for shares were received too late. £1 per share had been called up, received, and invested. The subscribed capital was now £50,000, and the paid up capital £10,600. The premiums on new issue had been placed to Reserve Fund, after deducting the cost of the new issue. Since the financial year had closed, a claim for damage to glass by hail had come from Kirkwall, Orkney Isles, and had been promptly paid.

THE ROYAL HORTICULTURAL OF IRELAND.

APRIL 11.—The spring function was held in the Royal University Buildings, Dublin. During the afternoon T. R. H. Princess Christian and the Duke and Duchess of Connaught paid a visit to the show, and shortly afterwards the Lord Lieutenant and Countess Cadogan arrived. The display was a capital one despite the late winter, though Tulips were not fully expanded, and Cinerarias were poor.

The competition in the classes for plants was exceptionally keen, especially for Roses (pots), Ferns, Azaleas, Primulas and bulbous plants. Roses were of moderate quality, but Azaleas were good.

The premier place for nine pots of Roses was given to the Earl of Pembroke (gr., Mr. H. Crawford), who likewise won the Ardilaun Challenge Cup.

Ferns included some grand specimens, and 1st prize was accorded to F. A. MILLER, Esq., Windsor House, Monkstown (gr., Mr. D. Colohan), for a group of Adiantums in variety. Lily of the Valley, Freziera, Mignonette, Primulas, and Spiras were exhibited well. The snow-white Dentusias staged by Mr. MILLER were very fine.

Hyacinths were well shown by Mr. Porter, gr. to Lord Ashdown, Woodlawn, Galway; and by JOHN MILLER, Esq., Baginbun House, Sandymount (gr., Mr. P. Geoghagan).

For a group of foliage or flowering plants, several varieties being excluded, namely, Fuchsias, Pelargoniums, Calceolarias, and Cinerarias, Mr. Coughlan, gr. to Mrs. McCOMAS, The Grange, Monkstown, was 1st with a magnificent exhibit.

CUT BLOOMS

were very fine, and the Daffodils made a profuse display. The chief competition in these was that for a collection of flowers (excluding Polyanthus Narcissi), which would represent the three chief groups, namely, Magni-coronati, Medio-coronati, and Parvi-coronati. Mr. W. RIGG staged very well-grown blooms, and was 1st.

Cut Roses included some excellent specimens of *Maréchal Niel*, from Mr. J. Harvey, gr. to Ed. D'OLIER, Esq., Knocklin, Bray.

Tea Roses were well shown by ERNEST H. BEWLEY, Esq., Cowper Road, Rathmines.

FRUIT AND VEGETABLES.

There was not much fruit shown, but Apples and Strawberries were represented.

Of Strawberries, Mr. Jeffreys, gr. to the Countess CALEDON, Caledon Park, Tyrone, staged an exhibit of Royal Sovereign; the fruits weighing over 2 ounces each.

For a collection of ten distinct kinds of vegetables Lord ASHTOWN's gardener was 1st.

NON-COMPETITIVE EXHIBITS.

Mrs. GOODBODY, Obelisk Park, Blackrock (gr., Mr. Davis), exhibited a magnificent collection of seedling Hippeastrums.

Mr. JEFFREYS displayed a double Violet, the Countess of Caledon. The blooms are a little larger than those of Marie Louise, and have more substance.

Miss CURRY, Warren Gardens, Lismore, staged a collection of Narcissus, &c. The section devoted to *N. cernuus* included the double variety of *N. cernuus*.

Messrs. DICKSON, Chester, staged a collection of Narcissus and other hardy flowers.

Messrs. DRUMMOND & SONS, Dawson Street, Dublin, had a group of foliage and flowering plants, &c.; and Messrs. HENDERSON & SONS, Blackrock, showed a group of specimen Palms. This latter firm exhibited a floral device representative of the medal struck to mark Her Majesty's first visit to Ireland in 1849. It was at least 4 feet across, having a groundwork of Shamrock, with a neat edging of Narcissus princeps. A harp and crown were wrought in the centre in Narcissus incomparabilis, and the following words were executed in Violets:—"First visit of a British Queen to Ireland; every heart throbs with hopes for the future," whilst the date was wrought in Lily of the Valley, namely, "August, 1849."

Messrs. HOOE & ROBERTSON, Dublin, had a pretty stand of Tulips, Hyacinths, and Daffodils in variety.

Messrs. DICKSON, of Newtownards, Down, made a wonderful show of 250 Rose blooms. The box of blooms of Catherine Mermet were faultless, but the following individual flowers were by far the best specimens:—Alice Graham, Lady Mary Beauclerk, Countess of Caledon, and Lady Mary Curry. When the Lord Lieutenant saw them, he requested them to be sent to Her Majesty the Queen (Gold Medal).

Mr. F. W. MOORE, as usual, staged a fine group of Palms and flowering plants from Glasnevin Botanic Gardens (Gold Medal).

MISCELLANEOUS SOCIETIES.

Croydon Horticultural Mutual Improvement.—A monthly meeting was held on the 17th inst., when Mr. W. J. Simpson, Falkland Park Gardens, presided. Over forty members were present, and a paper was read by Mr. GREEN, Chairman of the Raising Society, on "How Plants Feed." The lecturer introduced the subject by describing the structure and functions of the various organs of plants, and their means of making use of the constituents of soils and manures. Five new members were nominated. Two dozen Auriculas were shown by the Treasurer, Mr. F. C. L. Wratten, and a fine plant of *Gasteria maculata* bearing a large spike of flowers. Mr. Reddam, West Wickham, brought a spike of *Richardia*, with two well developed spathes. The next meeting will be held on May 22, when the subject will be "Walks and Talks in Kew Gardens," illustrated by lantern-slides and photographs, to be delivered by the Secretary, Mr. John Gregory.

GARDENING APPOINTMENTS.

Mr. W. TITCHMARSH, for the past two years and a half Gardener to the Rev. H. ATHILL, Digswell, Welwyn, as Gardener to the Right Honourable the EARL of MORTON, Conaglen House, Ardour, N.B.

Mr. W. G. EDWARDS, for the last three years Gardener at Alderholt Park, Dorset, as Gardener to Captain C. M. HASTINGS, Goodrington House, Falmouth, Devonshire.

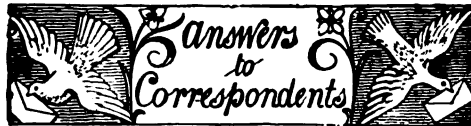
MARKETS.

GLASGOW: April 25.—The following are the figures current since our last report:—Apples Canadian: Northern Spies, 24s. to 26s. per barrel; Baldwins, 24s. to 26s. do.; Golden Russets, 20s. to 24s. do.; Waggon, Greenings, Ben Davis, &c., 18s. to 22s. do., all for best clear fruit; Nova Scotia, Baldwins, Northern Spy, Ben Davis, Golden Russets, &c., from 18s. to 26s. per barrel, according to the quality; Bananas, extras, 8s. 6d. to 10s. 6d. per bunch; No. 1, 6s. to 8s. 6d. do.; No. 2, 6s. to 7s. do.; Oranges, Valencia, ordinary 420's, 12s. 6d. to 14s. 6d. per box; large 420's, 15s. to 18s. do.; extra large, 18s. to 24s. do.; large 714's, 18s. to 20s. do., these prices for sound fruit; Jaffas, 144's and 152's, 11s. to 12s. do.; Murcis, 130's, 150's, 200's, 240's, 7s. 6d. to 8s. 6d. per case; bloods, same size, 8s. to 9s. do.; Naples Bitters, 200's, 3s. 6d. to 4s.; 360's, 3s. 6d.; 360's, 3s. to 3s. 6d. do.; Lemons, Palermo,

250's and 300's, 5s. to 5s. 6d.; 360's, 4s. 6d. to 5s. 6d.; Grapes, English, 3s. to 5s. per lb.; Mushrooms, 10d. to 1s. 5d. per lb.; Tomatos, Tenerife deeps, 5s. 6d. to 6s. 6d. per box; do., cases, 7s. 6d. to 8s. do.; Onions, Egyptian, 6s. 8d. to 7s. per cwt.; Valencia, 4's, 7s. 6d. to 8s. per case; selected, 7s. 6d. to 8s. 6d. do.; Turnips, Swedes, 1s. 9d. to 2s. per cwt.; Carrots, 5s. 6d. to 6s. 9d. do.; Parsley, 8d. to 1s. per dozen bunches; Cucumbers, 2s. 6d. to 3s. 6d. per dozen; Cauliflowers, 1s. 6d. to 2s. 3d. do.; Cabbages, 10d. to 2s. do.

LIVERPOOL: April 24.—Wholesale Vegetable Market.—Potatos, per cwt.: Lynn Greys, 3s. to 3s. 6d.; Main Crop, 3s. 9d. to 4s. 6d.; Bruces, 3s. 6d. to 4s.; Champions, 3s. 6d. to 3s. 9d.; Turnips, Swede, 1s. 8d. to 1s. 10d. per cwt.; Carrots, 5s. to 6s. do.; Parsley, 8d. to 10d. per dozen bunches; Onions, foreign, 5s. 6d. to 6s. per cwt.; Cucumbers, 2s. 6d. to 3s. 6d. per dozen; Cauliflowers, 1s. 6d. to 2s. 6d. do.; Cabbages, 2s. to 2s. 3d. do. St. Johns.—Potatos, 1s. per peck; do., new, 6d. per lb.; Pines, English, 5s. to 6s. each; Strawberries, 6s. per lb.; Peas, 8d. do.; Asparagus, 2s. 6d. to 3s. per bundle; Cucumbers, 6d. each; Mushrooms, 1s. 6d. per lb. and basket. Birkenhead.—Potatos, 1s. to 1s. 2d. per peck; do., new, 4d. to 6d. per lb.; Cucumbers, 4d. to 8d. each; Filberts, 10d. per lb.; Grapes, English, 1s. 6d. to 3s. 6d. do.; do., foreign, 4d. to 8d. do.; Mushrooms, 1s. to 1s. 6d. do.

(For remainder of Markets and Weather, see p. xii.)



A TOOL FOR TRANSPLANTING BUDS: *F. B., Jersey, and J. R. B., Petersfield.* We do not know what the cost of the implement figured last week would be, nor whether it may be obtained in England. But if not already on the market here, one of the large firms of implement makers and dealers would doubtless procure it for you from America.

CARNATION LEAVES: *H. C. D.* The Carnation leaves are affected with rust, *Helminthosporium*, often described and figured in these columns. Burn the affected plants, and syringe the others with sulphide of potassium, $\frac{1}{4}$ oz. to 1 gallon of water.

CARNATION SOUVENIR DE LA MALMAISON AND DAMPING-OVER: *O. A. B.* Slight syringing of the foliage does not harm whilst the plants are in growth, but the less it is indulged in at other seasons the better; much water applied in this way removing the white waxy covering of the leaves, and rendering them susceptible to fungus disease.

FLOWERING-PLANT TO ACCOMPANY MONTBRETIAS: *G. F. R.* The scrap sent appears to be *Gypsophila paniculata*. No time should be lost in planting, or digging up and re-planting the Montbretias; and the *Gypsophila* may be planted at the same time.

GRAPE SPOT: *Constant Reader.* We believe your Grapes are affected with a fungus. Send specimens when further advanced.

NAMES OF FRUITS: *A. C.* The Apple should have been sent earlier, when it was in better condition. It is probably Cornish Aromatic.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*T. J. R. C.* *Illicium floridanum.*—*A. J. R.* 1, *Saccolabium curvifolium*; 2, *Adiantum Paotii*; 3, *Dendrobium moschatum*; 4, *Selaginella viticulosa*; 5, *Begonia argyrostigma*. *J. B., Wilts.* A very fine and highly-coloured form of *Miltonia vexillaria*, and a good *Odontoglossum* × *Andersonianum* of that class often called *O. x hebraicum.*—*J. R., Hereford.* 1, *Cattleya intermedia*, a pale form; 2, Flowers withered, not recognised.—*May T.* 1, *Begonia Mrs. Anna Low*; 2, *Davallia hirta cristata*; 3, *Gymnogramma ochracea*; 4, *Andropogon Schœnanthus (Lemon-Grass)*; 5, *Agapanthus umbellatus variegatus*; 6, *Dictyogramma japonica variegata.*—*A. B.* 1, *Xylophylla latifolia*; 2, *Reidia glaucescens*; 3, *Dendrobium Devonianum*; 4, *Dendrobium Pierardi*; 5, *Lepidotes bicolor.*—*H. G., Walsford.* 1, *Epidendrum pinnatum*; 2, *Spiraea Thunbergi*; 3, *Perrettia mucronata*; 4, *Cephalotaxus pedunculata var. fastigiata.*—*G. M., Plymouth.* *Burlingtonia fragrans.* We shall be pleased to see the photograph of the fine plant of *Cœlogyne pandurata*, a good spike of which you kindly send.—

C. A. B. 1, *Haworthia rigida*; 2, *Mamillaria pusilla*; 3, *Haworthia margaritifera*; 4, *Cereus grandiflorus*, so far as we can judge without seeing flowers; 5, *Primula sinensis (from Sime)*, often called *P. abyssinica*; 6, *Berberis Aquifolium.*—*F. L. S.* 1, *Acacia armata*; 2, *Polygala Dalmatiana*; 3, *Stauntonia latifolia*; 4, *Sparmannia africana.*—*W. C.* The African Orchid is *Ansellia gigantea*, also called *A. africana lutea*. The leaf is of *Curculigo recurvata.*—*J. H.* *Hepatica angulosa*, double-flowered variety.—*Constant Reader.* Pellitory, *Parietaria officinalis*. We advise you to consult a medical practitioner, and not waste time by attempting to cure your dropsy, which is a symptom of many diseases; 1 and 2, *Saxifraga hypnoides*; 3, Wild Daffodil, *Narcissus pseudo-Narcissus.*—*E. H. C.* *Galax aphylla (N. Amer.).* Why called aphylla (leafless) we do not know.—*J. F.* *Ribes aureum.*

PEACH-LEAVES: *Cantrryn.* They are affected with the silver-leaf disease, which is very destructive. We advise you to cut away the affected shoots, and burn them.

PEACH LEAVES DEFORMED: *Peach.* The leaves sent are attacked by the fungus *Exoascus deformans* figured in *Gardeners' Chronicle*, May 30, 1891, p. 673. It is commonly known as the cause of "Curl" in the leaves of the Peach. Dress the trees repeatedly, say at interval of three weeks, with the Bordeaux Mixture, first removing the worst affected leaves.

PEAR LEAVES: *D. K.* These are attacked by mites, *Phytoptus pyri*. The Fig leaves are marked with brown spots. They are very common, but nothing is known as to their cause, and they do not appear to be of very much consequence.

Tobacco VARIETIES, AND GENERAL INFORMATION ON THE CULTIVATION OF THE PLANT: *Sarakulu.* A work on the subject was published by E. & F. N. Spon, 125, Strand, London, in 1886, entitled *Tobacco growing, curing, and manufacturing. A handbook for planters in all parts of the world.* The work consists of 285 pages, 8vo, and includes an extensive Bibliography of the subject. You might be able to get seeds of certain varieties of Messrs. J. Carter & Co., seedmen, High Holborn, London; who some years ago engaged in experiments of growing the plant on commercial lines.

VINE SHOOTS AND LEAVES DISEASED: *Perplexed.* The shoot and leaves are suffering from the so-called "browning," an obscure disease of the Vine, supposed to be due to a lime-fungus. Clear off and destroy forthwith by burning every affected leaf and shoot, and dress the Vines with sulphide of potassium at the rate of half an ounce to one gallon of water, repeating the dressing at intervals of fourteen days.

WOOD-ASHES AS A DRESSING FOR PHLOX SUBULATA: *W. C. D.* It would be inadvisable to apply wood-ashes (excepting those obtained by burning seasoned timber) to any plant at a higher rate than 4 oz. per square yard; and then to make the dressing quite safe in use, the ashes should be mixed with an equal weight of loam, and the whole passed through a sieve having a $\frac{1}{4}$ -inch mesh. Ashes from seasoned timber are much less pungent than those made from green wood and twigs, and they may be used much more freely.

COMMUNICATIONS RECEIVED.—*A. O'N.*—*W. H. Y.*—*Graciano A. de Azambula.*—*Durrant.*—*J. C.*—*J. J. & Co.*—*S. H.*—*T. Vaughan (shortly).*—*H. C.*—*J. G. W.*—*A. J. B.*—*W. G. S.*—*H. W. W.*—*E. J. H.*—*T. M.*—*V. N. G.*—*J. H. R.*—*P. B.*—*T. W.*—*W. H. M.*—*C. M.*—*Gwalior.*—*J. O'B.*—*J. C. & Co.*—*W. W.*—*J. B.*—*R. J. L.*—*A. R.*—*F. Proschowsky.*—*T. J.*—*Florence.*—*C. H. T.*—*Teignmouth (next week).*—*R. D.*—*Enquirer (next week).*—*A. D. H.*—*M. B.*—*Middelburgh.*

SPECIMENS AND PHOTOGRAPHS RECEIVED WITH THANKS.—*Dr. de Azambula.*

Continued Increase in the Circulation of the "GARDENERS' CHRONICLE."

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

TREBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, and ALL CLASSES OF GARDENERS' AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.

ROYAL HORTICULTURAL SOCIETY.

A GENERAL Meeting of the Society was held at the Drill Hall, Westminster, on Wednesday, April 25, to consider the new bye-laws and the proposals of the Council as to the establishment of a New Garden, &c. (see p. 264).

Sir TREVOR LAWRENCE, Bart., M.P., presided, and there was a large muster of Fellows.

The SECRETARY (Rev. W. WILKS) having read the notice convening the meeting,

The CHAIRMAN said: Our first business is to consider, and sanction if approved, either with or without addition, omission, or alteration, certain new bye-laws rendered necessary by the Supplemental Charter lately granted to the Society. The bye-laws are of very considerable length, although our object has been to reduce them to as limited a space as possible. I do not know whether the Fellows wish them to be read. Copies have been available to the Fellows of the Society and anybody who applied for a copy has been supplied. Is it your pleasure that the bye-laws be taken as read?

Dr. MASTERS: No, no! There are a great many amendments to be made.

The CHAIRMAN then proceeded to read the bye-laws, and after a while observed: I may say that these bye-laws have been very carefully gone through by the Council with the assistance of a member of the firm of solicitors who do the work of the Society, and who devote serious attention to this particular business.

Dr. MASTERS: Would it not be sufficient if we objected to any particular bye-law without giving you the trouble to read them all?

Sir WILLIAM THISELTON DYER: I have not, so far, seen the bye-laws.

The CHAIRMAN: They have been at the disposal of the Fellows.

Sir MICHAEL FOSTER: It is the duty of the Society to see that the Fellows have copies of the bye-laws.

The CHAIRMAN: I do not know whether it is the duty, or not the duty, of the Society. I am perfectly ready, as long as my voice lasts, to read them.

Sir WM. THISELTON DYER: It is a matter of some moment. A new Charter has been applied for and granted. Under the powers of that Charter new bye-laws have been framed for the Society. Of course, we all know that that was the absolutely necessary and proper course to take, but I cannot understand why it should be necessary to rush through these bye-laws—which, for all I know, may be admirably conceived and correctly drafted—without their having received the consideration which I think they ought to have received at the hands of the Fellows, whose conduct in the future they are to guide and govern. As the matter is absolutely vital to the prosperity of this Society, would you be willing to accept a motion to defer their consideration to an adjourned meeting? (Hear, hear.) Those Fellows who wished to do so could then obtain copies and study them.

The CHAIRMAN: The bye-laws have been circulated to every member.

Several Members: "No, no."

The CHAIRMAN: I mean this slip has been.

Sir W. THISELTON DYER: It was only by the merest accident that I found the slip in the pages of the Report of the Hybridisation Conference. I should have thought that in a matter of such importance, it should have been posted by the Society to every Fellow. I do not consider it my duty to ask for a copy of the bye-laws, seeing that that is the practice of every Society to which I belong to send them out in a proper manner. It is stated on the slip that the bye-laws will be printed in the *Journal*. When that course has been taken it will then be time for the Society, as a Corporate body, to consider them. I venture to move that the consideration of the bye-laws be deferred to an

adjourned meeting when the members of the Society will have had an opportunity of considering them, and will be able to bring forward and submit to the Council such amendments as they may think advisable. I appeal to those present who are members of other societies, whether such a course has ever been taken as to cause a new code of internal laws to be considered in a most perfunctory manner.

Dr. MASTERS: I second the motion.

The CHAIRMAN: We have no objection whatever. The bye-laws, as I have said, have been gone through by a member of the solicitors' firm, who at present do that work for the Society. The new Charter, we were advised, abrogated the old bye-laws. That seemed to be an exceedingly inconvenient position so far as the Society was concerned, and therefore a great deal of time and labour was given to their consideration. So far as the Council are concerned, they have no objection to the consideration being deferred.

Surgeon-Major INCE: It seems a great pity that the Society should be called upon to attend another meeting. I do not think we should adjourn. Let us get through a little work, if not the whole of it.

A FELLOW: There is plenty to do besides this!

A FELLOW: I have to say that I sent a stamp, and received the bye-laws almost immediately. What I did could have been done by other Fellows.

The CHAIRMAN: It has been proposed and seconded that the consideration of the bye-laws be adjourned—is this the precise tenour of the motion?

Sir W. THISELTON DYER: I leave the exact wording to the Council. The adjournment might be till after one of our fortnightly meetings, when a large number of Fellows would be in town.

A FELLOW: Are we not to have a copy of the bye-laws?

Sir W. THISELTON DYER: They will be printed in the *Journal*.

A FELLOW: That will be too late then. They should be passed before appearing in the *Journal*.

The CHAIRMAN: It is all a question of expense, which would be enormous, to send 5000 copies.

The motion for the adjournment of the consideration of the bye-laws was then put, and carried by a considerable majority.

The CHAIRMAN: The next business is to consider and adopt various resolutions. With the consent of the meeting I propose to divide the resolutions on the pink paper [see 1 and 2 in the leading article, p. 264]. There are two distinct propositions which do not necessarily hang together. The first is as follows:—

"That in accordance with the recommendation adopted unanimously at the Annual General Meeting to celebrate the Centenary of the Society by removing the gardens from Chiswick." There the resolution stops. The matter was brought fully before the committee meeting and printed in the Council's report. I also made some lengthy remarks on the subject. I then pointed out that there were hardly two opinions that the best way of celebrating the Centenary of the Society would be the acquisition of a thoroughly satisfactory hall for exhibitions. Upon that we were all agreed, almost without a dissentient voice. The only difficulty was a financial one. It will be remembered that a very nearly successful attempt was made, mainly at the suggestion of Baron Schroder, to obtain a Horticultural Hall. I may say that £27,000 were subscribed; and Baron Schroder, with the generosity which is so characteristic of him, said that if £35,000 of the £40,000, which was the sum required, were subscribed, he would supply the remainder. (Hear, hear.) But, unfortunately, the matter fell through. We went very carefully at the time into the whole question of the provision of a Horticultural Hall. Numerous sites were considered, and a site was ultimately decided upon. It would have been a very good one on the Embankment, but it would have entailed a heavy

ground-rent to the City of London. I only mention this now to show how we went into the matter, and that we really felt that the best way to celebrate the Centenary of the Society would be the provision of a Horticultural Hall. As to the question of the removal of the gardens from Chiswick, I may say that the lease has still twenty years to run, and that I need scarcely say is a very valuable asset to the Society. I am not a lawyer, and I cannot undertake to say what the value of that lease is, or how far its unexpired term would be considered an asset of the Society. The difficulty is that the Chiswick Garden has gradually been built in. It is surrounded with villas, there are several factories in the immediate neighbourhood, and it is more and more difficult to keep the garden in such a condition that it ought to be kept in. That has been the great difficulty with us. So far as I am individually concerned, I have never thought Chiswick satisfactory. We want more space. There are only 13 acres, and we want a greater variety of soil, aspect, exposure, and so on. (Hear, hear.) After considerable discussion, the Council decided to propose, and did propose at the Annual General Meeting that the Centenary of the Society should be celebrated by obtaining a garden elsewhere. In February last, a motion was submitted and adopted, and I can hardly suppose that the Fellows of the Society intend to treat their Council in an exceedingly light way, after having unanimously agreed, without a dissentient voice—because there was no voice opposing or suggesting that the course proposed was an improper one. It seems to be rather a strange thing that a suggestion should be made now that it is not a proper way to celebrate the Centenary of the Society. It is, of course, a matter for the Fellows to decide, but I have only wished to mention the Council's views. I now propose: "That this meeting confirms the recommendation of the Council made to and unanimously adopted by the Annual General Meeting, viz., that the Centenary of the Society be celebrated by removing the gardens from Chiswick."

Mr. J. H. ELWES: This matter should receive the great attention it deserves. It seems to me, however, impossible to discuss the question of leaving Chiswick without knowing where it is proposed to go. A man does not usually leave his house, or pull his house down, without seeing where he is going. I fail to see how the matter can be discussed fully without that knowledge. I feel some reluctance in speaking on the subject, and I hope, I am sure, you will not put this opposition down to any pre-arranged plan. I may say, and I think it is only fair to make this personal explanation, that there has been no attempt on my part, or so far as I know on the part of any other gentlemen, to get up a cabal or organized opposition. I can only say with regard to your assumption that the matter was laid before the General Meeting of the Society, that I, and many other members of the Society were at that time too deeply anxious about other matters to attend, and if I had attended and the matter been discussed, I should have said that it would be absolutely impossible for any member of the Society to give any opinion at all on a subject brought forward in such a vague manner and without any knowledge of the details. I also think that the importance of unanimity on such a question as this is a matter which should not be overlooked. Fifteen years ago when I served as a member of the Council, you will remember great dissensions were constantly arising, especially in regard to the question of South Kensington. Matters of grave differences of opinion arose in those days, and I recollect that questions arose upon which the members of the Council were not unanimous.

The late Lord ALFRED CHURCHILL felt very strongly that no section of the Council was justified in carrying resolutions which were felt to be of vital importance to the future of the Society unless—I will not say that the Society were

unanimous—but unless a large proportion of the members of the Society agreed. I have always felt that to be elected a Fellow of the Society was to be made a trustee of the interests of the Society, and if questions arose on which there might be grave differences of opinion, you must give the Fellows ample opportunity of judging all the facts, and of supporting the Council, if they could agree with that body. We were not, in February last, in a position to express our opinion, and we have not now had sufficient notice. I do not know whether notice was sent. I have not had any, and I only saw it in the *Gardeners' Chronicle*. Some of the members of Council with whom I am best personally acquainted, and in whose opinions I have the greatest confidence, and who I believe are not unanimous about this matter, are absent, and Mr. Sutton, who, I have just learnt, has felt it to be his duty to resign his membership of the Council, and whose letter will probably be read to the meeting.

Mr. ELWES: Whether or not these gentlemen would confirm what I have said, I do not think matters much, but when I read the report of Mr. Sutton, who all will admit is quite able to express an opinion on a question like the proposed purchase, I felt that it was a little premature to push the question. Even should we be called upon to decide to abandon a garden where we have been for 60 or 70 years, and which has served perhaps the oldest Horticultural Society in the world. We have been told that it is built in, that the soil is unsuitable, and that smoke prevents the plants from growing, and the fruit from ripening. All I can say is that within 2 miles of Chiswick some private gardens are models to any one, and there are prosperous market-gardeners who have not been obliged to go away. Then there is Kew! I feel quite sure the owners of some gardens would be ashamed of our action. Another point has been raised about the accessibility of Chiswick. Now I certainly think Chiswick is a great deal the better place to get at than some other gardens. I think we ought to have some thought for the north of England, and I think the Society ought not to be worked as a London Society. I want to see it a National Society. (The Chairman: Hear, hear.) I do not wish to oppose the removal if you can show me something better. The question largely hangs upon the consideration, whether you are looking about for some site possibly more accessible than Chiswick, with fresher air, and better soil, and I venture to say that you could do better with half the money which you are prepared to recommend the Society to spend on Limpsfield.

We have been told of the question of expense. That is a very proper thing to consider, because there is no doubt; we are also told that we may expect a large amount of support from certain County Councils. We must remember two things. First of all it is public money, and members of County Councils, who I am told are actively interested in this matter, will very properly demand representation on the Council.

The CHAIRMAN: You are mixing up two things which are quite distinct. The statements you are making are, in a great measure, very inaccurate.

Mr. ELWES: I fail to understand how we are to discuss leaving Chiswick unless we know where we are going and I move that that matter and the purchase of Limpsfield be considered together, and not separately.

Mr. A. DEAN: Mr. Sutton's paper was strictly confidential, and it is improper to quote it in public.

A FELLOW: How do you know it is confidential? The CHAIRMAN: It was sent to me marked "Confidential."

Mr. ELWES: I have not introduced the question in detail. If the Council do not want the paper discussed, they had better say so. Sooner or later, whether confidential or not, it will have to be discussed, and I see no reason why there should

be any concealment. (Hear, hear.) We are all greatly indebted to the Chairman for the manner in which he has kept the Society afloat, and I am only anxious to be able to support him and the Council in the future.

The CHAIRMAN: When a gentleman sends me a paper marked "Confidential," all I can say is I cannot discuss it. I may be old-fashioned in my views. No members of County Councils propose to finance a scheme for getting a new garden.

Mr. ELWES: I do not understand it.

The CHAIRMAN: And I hope that, gentlemen, in discussing this question, will not do so in absolute ignorance of the facts. Neither the Surrey County Council nor any other County Council has made any proposal to finance a scheme for a new garden. What the Surrey County Council is interested in, is the establishment of a Horticultural College. That has no more to do with a new garden than has the man in the moon.

Mr. JOHN WEATHERS: I beg to second Mr. Elwes's proposition that these two things be taken as one. It seems to me we ought to know what the future position of this Society is to be, what amount of money is to be spent on the site, what is the cost per acre, and then we shall have some facts to go upon. I think it is only fair to the meeting that the Fellows should have some facts before them, otherwise we shall all be out of order. We cannot discuss the future of Chiswick without knowing whether we are going to better it. (Hear.)

Mr. GEORGE PAUL: I think Chiswick is played out, and that is the first point the Council had to consider. Buildings have grown round it. For many years I was a monthly visitor at Chiswick as a member of the Chiswick Council, and I challenge Mr. Elwes to say that the trials could be properly carried out, owing to the buildings, the smoke, the drainage, and the general climatic conditions.

Sir W. THISELTON DYER: I rise to a point of order. Is it not desirable to dispose of Mr. Elwes's motion?

Mr. PAUL: I am speaking to that motion. I feel that all who know Chiswick must say that it is unfit for the purposes of our Society.

Mr. GORDON: I rise to a point of order. The Chairman's motion, I understand, has not yet been seconded.

The CHAIRMAN: It was seconded by Sir John Llewellyn.

Sir JOHN LLEWELLYN: In seconding it, I would like to say that we should move from Chiswick now, while there is some of the lease to run. That value will disappear if we put the matter off. It is desirable from a horticultural point of view that we should get away. Last year we had forty-eight days of severe London fogs, which interfered with our work considerably. Then we ought to have a garden larger in area and more capable of horticultural possibilities. The Council have already decided that it is desirable to give up Chiswick, and I think the question of detail ought to stand upon its own bottom.

Mr. ROUFELL: The value of land is increasing at an enormous rate. Land which could be bought a few years ago for £1500 per acre, could not be purchased now for £4000. The longer you remain at Chiswick the more valuable it becomes.

Sir JOHN LLEWELLYN: It is a diminishing lease.

Mr. ROUFELL: I strongly advise you to hold on, and you will make better terms. As to the fogs, I can contradict the statement made. They are not so bad as they used to be. (Oh!) It is a fact. (Laughter.) The smoke nuisance is diminishing, and I speak as a grower of fruit within 5 miles of London. Of course, the old garden is played out, if it is neglected as it was in the old days. What is the use of the science of horticulture, if it cannot make its own garden? (Hear, hear.) I am quite sure it is not an honest excuse. (Oh!) I think there must be some other reason which pre dominates. ("Order.") I have always been a loyal

supporter of the Chairman, but I feel the Council is taking a false step, and that they will do better if they take the Society more into their confidence, and try and act in harmony with the general feeling of the Society. (Hear, hear.) I am quite sure if we go to Limpsfield we shall make a mistake. I am a Surrey man, but I am quite sure it would be very hard to make a worse selection. ("Order!")

The CHAIRMAN: We are not discussing the Limpsfield site.

A FELLOW: Has the Council got any definite idea what they will get for the Chiswick site?

The CHAIRMAN: I cannot answer a hypothetical question.

Mr. H. J. PEARSON: It appears to me that the resolution would meet the case if these words were added:—"Subject to the Council finding a site which will meet with the approval of the majority of the Fellows." (Cheers.)

Sir MICHAEL FOSTER: Is this the only way of celebrating the Centenary?

The CHAIRMAN: Any suggestions which recommend themselves to the Fellows of the Society would be accepted.

Sir MICHAEL FOSTER: I have a strong feeling that we should celebrate the Centenary by getting an adequate hall or building.

The CHAIRMAN: Hear, hear!

Sir MICHAEL FOSTER: You mentioned £40,000. I have yet to learn that that sum is necessary to provide a hall where beautiful flowers could be seen, and not as now, through a veil, darkly.

Mr. JOSEPH CHEAL: I think Mr. Pearson's proposal has cleared the way. I want to know what the next step is to be. I agree that it is desirable to leave Chiswick.

The CHAIRMAN: I can assure our friend Sir Michael Foster, that every effort was made by Baron Schröder and myself to obtain funds for a hall. We had numerous offers of sites and even halls, and the Baron was of opinion that nothing under £40,000 could do what we required. Those who think we can get £40,000 are more sanguine than I am. I am not going to discuss the site at Limpsfield. It must not be supposed that we did not visit numerous other sites, including the one proposed by Mr. Sutton at Reading. We simply chose the best site.

The CHAIRMAN then put the motion with Mr. Pearson's addition, and it was carried by a very large majority.

Mr. GEORGE BUNYARD suggested that those Fellows who wanted the bye-laws should write for them. That would save expense.

The CHAIRMAN announced that the business was at an end. He deprecated any personal attacks, and said that so far as he was concerned, there was absolutely no foundation for them. He could not help thinking that the speaker who made them would withdraw them.

Mr. ROUFELL said he had been misunderstood. He only suggested that there were other reasons—not unworthy motives.

The CHAIRMAN said he should be sorry for anyone to think that the Council had any other desire than to get the best site. He was glad to know that the Society stood in very good repute. The events referred to by Mr. Elwes occurred more than fifteen years ago, because he (the Chairman) had been president for sixteen years.

Sir W. THISELTON DYER said he did not want to part without saying how much they all appreciated the conciliatory way in which the Chairman and Council had met them. (Hear, hear.) He confessed he was not aware that they were bound by the Annual General Meeting, and after what had been said he was sorry that he had alluded to Mr. Sutton's report, but that gentleman had just sent him the following telegram, which quite relieved him. It ran as follows:—"Personally acquainted with land in Middlesex, Essex, Suffolk, Bedfordshire, Lincolnshire, Durham, Ayrshire, Dumfriesshire, Cambridgeshire, Surrey, Kent, Hampshire, and Dorsetshire, but never saw good

garden crops growing on soil like three-fourths of Limpfield site, much of which is too retentive to drain satisfactorily. Probably no meeting to consult Fellows would have been called but for my action on Council. ARTHUR SUTTON."

Mr. ELWES asked if the Council were determined to postpone the selection of a site, and to take suggestions from the Fellows?

The CHAIRMAN: I think it is almost unnecessary for me to say that any assistance that can be given to us in regard to this matter, or any other matter, will be most carefully received. With regard to Mr. Sutton's telegram, it is a conspicuous instance of how doctors disagree. (Laughter.)

A FELLOW: To what date do we adjourn?

The CHAIRMAN: We have got to look at all the sites, and it will take some time. We will give full notice of the date of meeting.

On the motion of Surgeon-Major Ince, seconded by Dr. Masters, a hearty vote of thanks was accorded to the Chairman, and the meeting ended.

APRIL 24.—The fortnightly meeting of the Committee was held in the Drill Hall, Westminster, on Tuesday last, and the exhibits in connection therewith would have been more than sufficient to conveniently fill the building. But the annual show of the National Auricula and Primula Society was also held at the same time and place, and the result was anything but gratifying to exhibitors and visitors. In the first place, it was stated that 500 feet of space was applied for by exhibitors beyond what could be given them, and in the endeavour to accommodate as far as possible the number of exhibits forthcoming, Mr. WRIGHT, who always exercises very great tact in such matters, permitted exhibits to be placed in positions that on an ordinary occasion are left free. On "Auricula Day" there is always a larger attendance of visitors than usual, which further aggravates the evil of overcrowding, and on Tuesday during moments in the afternoon some of the pathways were practically impassable.

Until a more convenient place than the Drill Hall is possible for the exhibitions of the Society, for convenience sake it would be better to hold the Auricula Show upon a separate day.

The ORCHID COMMITTEE had less to do than for some time past. This body awarded four First-class Certificates, three to *Odontoglossums* and one to *Cattleya Schilleriana*, Pitt's variety; also two Awards of Merit, and three Botanical Certificates.

The FLORAL COMMITTEE had a great variety of subjects to consider, and a number of large groups of plants and flowers. Seven Awards of Merit were recommended, all of them to new varieties of well-known plants. The groups of plants included magnificent Roses, Cinerarias, Hippeastrums, hardy Azaleas, and forced plants.

No award except a Cultural Commendation and a Vote of Thanks was made by the Fruit and Vegetable Committee. There were excellent fruits of Royal Sovereign Strawberry shown, and also fruits of the large Metford's Lemon, from the Royal Gardens, Kew (figured on p. 267), and fruits of the common Lemon from Mr. BENNETT-Fox.

The NARCISsus COMMITTEE had the busiest day experienced this season, and there was a very remarkable display of *Daffodils* and *Narcissus* of most sections. Not only were there numerous large collections of these shown, but there were so many excellent novelties that the committee awarded four First-class Certificates and eight Awards of Merit. Two of the First-class Certificates and two Awards of Merit were gained by flowers shown by Miss WILLMOT.

Descriptions of the twelve varieties that were recommended awards must be held over until our next issue.

In the afternoon a lecture on *Narcissus* was given by the Rev. S. E. BOURNE.

Scientific Committee.

Present: Dr. Maxwell Masters (in the Chair); W. Bateson, F.R.S., W. Wilks, Prof. Church, Dr. Müller, Mr. McLachlan. *Ash-shoots barked by hornets*.—Mr. McLachlan exhibited growing shoots completely ringed by the hornets. This is apparently a rare occurrence, but the Chairman recorded a similar instance which had come under his notice in Messrs. Lee's nursery at Isleworth many years ago.

Fasciated roots of Aloe sp.—From Mr. Justus Oorderoy came specimens of pot-bound *Aloe*-roots, some of which were markedly fasciated. Fasciation so common in stems is very rare in roots, only two or three instances being recorded, viz., in *Spiraea*, and in some epiphyllal *Orchids*.

Umbellate Primrose.—Mr. Arthur Sutton sent a flower of this variety, at one time confused with the *Oxlip*.

Evolution Committee.—Mr. Bateson attended as a delegate from the Royal Society to bring before the members of the Committee some explanations of the kind of work which it was hoped some cultivators might be disposed to undertake, with a view to the accurate observation, and, where possible, measurement of variations in the plants under their care. A raiser of Chinese *Primroses*, for instance, might keep under observation all the variations that arise, measure and draw or photograph them before throwing them away, so that we should have some record of the intermediate stages between the original forms and the variety thought worthy of perpetuation.

Floral Committee.

Present: W. Marshall, Esq., Chairman; and Messrs. Jas. H. Laing, H. B. May, G. Reuthe, Geo. Nicholson, J. H. Pitt, E. Moynaux, J. F. McLeod, C. R. Fielder, H. Selfe Leonard, J. Fraser, J. D. Pawle, Herbert J. Cutbush, R. Wilson Kerr, George Gordon, Chas. Jeffries, T. W. Sanders, E. H. Jenkins, Chas. E. Rhea, E. T. Cook, Geo. Paul, J. W. Barr, Chas. Blick, H. J. Jones, Jas. Hudson, John Jennings, W. Howe, and Harry Turner.

CINERARIAS.

Cinerarias from Messrs. J. CARTER & Co., High Holborn, London, created a dazzling blaze of colour. The plants were arranged upon the floor, where the blooms were completely under observation, and the rays of sunshine lit up the brilliant colour to an extraordinary degree. The strain represented is a capital one in respect to size of bloom, and distinctness of colour. There were selfs from deep violet-purple, and crimson to pure white, and varieties with white bands of varying width around the disc. A smaller group of plants with double flowers was placed near to the others, but they are much less pretty and showy, and the public taste can hardly be complained of, if it neglects this type in favour of the single flowered strain (Silver Banksian Medal).

Messrs. J. VEITCH & Sons, Royal Exotic Nurseries, King's Road, Chelsea, exhibited a group of plants of Cinerarias, a strain obtained from *Cruenta* hybrids, and shown under the name of *Cineraria polyantha*. The plants were 1½ to 2 feet high, abundantly flowered, and possessed a good variety of colour. They combine the freedom of flowering of earlier *cruenta* hybrids, with a dwarfer habit of growth (Silver Banksian Medal).

A group of Cinerarias was also shown from the Royal Gardens, Kew. These were examples of a variety known as *Lady Thimelton Dyer*, and were obtained from a cross between *Sanecio Hartleri* and a blue-flowered garden Cineraria. The foliage is like that of *S. Hartleri*. It has a graceful, very free habit, and the flowers have a white band around the disc, and blue again at the circumference. It is readily propagated by cuttings, and is very popular at Kew.

ROSES.

Messrs. PAUL & Son, The Old Nurseries, Cheam, had a group of Roses in pots, most of them dwarfs, but inclusive of a few standards also. The specimens were excellent ones and possessed fine healthy foliage, and a profusion of brightly coloured blooms. Prominence was given to *T. Ma Capucine*, *H. T. Mme. A. Chateau*, a lovely flower that always pleases; *H. P. Helen Keller*, *H. T. Mrs. Grant*, *H. P. Rev. A. Chasles*, *T. Innocente Pirola*, as standards, and many others. The delightful new *Polyantha Rose Psyche* was shown abundantly in flower, and six or seven feet in height. Several plants in the group, of *Gillenia trifoliata* showed what a very pretty plant this is when in flower, and is certainly worthy an introduction to the forcing-house (Silver-gilt Flora Medal).

Messrs. FRANK CANT & Co., Brinswick Nurseries, Colchester, also showed a group of pot Roses, all of them dwarfs. They were young plants, and bore nice healthy foliage and brilliant flowers. A large number of varieties was included in this group. *S. M. Rodocanachi*, *Star of Waltham*, *Ulrich Brunner*, *Mrs. Paul*, *Tom Wood*, &c., were very fine. A selection of varieties of the *Polyantha* section were pretty (Silver Flora Medal).

Mr. G. W. PIPER, nurseryman, Uckfield, Sussex, exhibited the new Rose, *Sunrise*, arranged in hyacinth-glasses, and a Bamboo stand. The blooms were in perfect character, charming in form, colour, and fragrance.

Mr. W. RUMSEY, Joyning's Nursery, Waltham Cross, made a good exhibit of cut Rose blooms. Out of a very large number of varieties we may specially mention *L'Idéal*, *Maréchal Niel*, *Niphetos*, and *Mrs. Rumsey*, which were of noticeable quality (Silver Flora Medal).

HARDY AZALEAS.

Messrs. R. & G. CUTBERT, Southgate Nurseries, Middlesex, staged a very glorious group of hardy Azaleas. This type has much smaller flowers than has *A. mollis*, but they are borne in the greatest profusion, and the variations in colours are most pleasing. Some of the prettiest varieties were *Auguste Medley*, pure white; *Juliana*, pink, with orange tint upon upper petal; *Unique*, orange colour; *Fanny*, pale rose, with orange shade on upper petal, apparently more profuse even than the rest; *Fritz Quibon*, bright red; *Grandeur*, *Tromphante*, pale rose and orange colour; *Lady Pigott*, yellow; *Baron von Heckler*, opening almost yellow; and *Bronze Unique*, an exceedingly attractive variety.

Messrs. J. VEITCH & Sons, Chelsea, showed a plant of *Azalea mollis atalarensis*, with flowers of yellow and orange colour.

HIPPEASTRUMS, CAMELLIAS, &c.

A magnificent group of seedling *Hippeastrums* (*Amaryllis*) was shown by WILBERFORCE BRYANT, Esq., Stoke Park Slough (gr., Mr. D. Kemp). They had all been raised from seeds sown in 1893 and 1894, and were now exhibited in pots, 12 inches or 14 inches in diameter. The cultivation that had been afforded the plants was extraordinary, for rarely are such immensely strong specimens shown. Some of the flower-spikes were nearly 3 feet high, and they appeared to indicate very high feeding. There were few light coloured flowers most of the varieties having very large blooms, more or less red in colour. A crimson self variety showed greatly superior merit to the rest shown, and is well worth perpetuation under a distinct name (*Silver Banksian Medal*).

A collection of cut flowers of *Camellia* from out of doors was shown by Sir FRANCIS T. BARRY, Bt., M.P., St. Leonard's Hill, Windsor (gr., Mr. R. Brown). The flowers were good specimens, and illustrated much variety of colour (*Silver Banksian Medal*).

Messrs. CANNELL & Sons, Swanley, Kent, showed a fine variety of *Primula obconica* in pots, also a group of plants of *Begonia Count Zeppelin*, with bright scarlet flowers. In the event of this variety proving a good "bedder," it would be most valuable, and would produce an exceedingly dazzling effect. Two fibrous-rooted *Begonias*, *Triomphe de Lorraine*, with red flowers, and *Boule de Neige*, white, were also noteworthy.

FORCED PLANTS AND MISCELLANEOUS.

Messrs. JOHN FEED & Sons, Roupell Park Nurseries, Norwood Road, London, S.E., showed a group of forced and other flowering plants, including a variety of *Lilacs*, *Staphylea colchica*, *Kalmia glauca*, *Viburnum Opulus sterile*, *Olivia*, &c. (*Bronze Banksian Medal*).

A large group of Japanese Maples in pots, and of *Acer Negundo*, *Eurya*, &c., was exhibited by Mr. J. RUSSELL, Richmond Nurseries, Surrey. The Maples represented great variety, and all were well shown (*Silver Banksian Medal*).

Messrs. BARR & Sons, King Street, Covent Garden, staged an interesting and novel exhibit of dwarfed Japanese shrubs and trees growing in porcelain bowls, pots, and dishes. These consisted of gnarled specimens of great age of Maples, *Berchemia racemosa*, a flexible woody Vine, *Potentilla fruticosa*, Red-leaved Maple, *Thuja* (*Retinospora*) *obtus*, a choice specimen, beautifully in character, and of great age. *Mistletoe* grafted on a species of *Fyrus*, of which no part above the graft was living. *Thuja* (*Retinospora*) *obtus*, and *T. (B.) pendula*, growing on the same plant; *Pinus densiflora*, *P. pentaphylla*, *Zeikowa keaki*, a tree in miniature, 6 inches high; *P. pentaphylla* growing on a rock, the height of the plant being 9 inches.

Mr. ROBERTSON (Hogg & Robertson), Queen's seedsmen, 22, Mary Street, Dublin, and elsewhere, showed an extensive collection of florists' Tulips, grown on Irish soil. Most of the varieties were broken, still a few unbroken (*Darwin*) Tulips found a place in it. Of the former mention may be made of the yellow varieties *California*, *M. Tresor*, *Ophir d'Or*, *Pottabakker*, and *Yellow Prince*, all choice single-flowered varieties. Of crimson single-flowered Tulips of much merit there were *Samson*, *Cardinal*, *Crimson King*, *Epaminondas*, *Prince of Austria*, *Belle Alliance*, &c. Desirable white varieties were *La Reine*, *Joost von Vondel*, *Pottabakker*, and *Duc van Thol*. Flamed white grounds (roses), *Pink Beauty*, *Silver Standard*, and *Comte de Virginie*. A yellow-edged crimson variety of large size and flbert form was observed in *Hector*. There were many other varieties beyond those mentioned above, and the whole formed an interesting and instructive exhibit (*Silver Banksian Medal*).

Mr. H. B. MAY, Dyson's Road Nursery, Upper Edmonton London, arranged a group of very miscellaneous plants upon the ground floor close to the entrance-door. There were forced hardy plants, and greenhouse and even hot-house species, but a very pretty effect was produced. *Rose Crismon* Rambler was conspicuous; *Hydrangea Thos. Hogg*, *Spiraea japonica compacta*, standard plants of *Acalypha hispida*, and *Clematis Nellie Moser*, &c.; this *Clematis* has very pretty blooms; the centre of the petal is rosy-purple, with silver-coloured margins (*Silver-gilt Medal*).

Messrs. JOHN LAING & Sons, Forest Hill Nurseries, London, S.E., had two groups, one of them composed of forced hardy plants, and the other of stove and greenhouse plants, including *Clivias*, *Ericas*, *Codisums*, and many choice plants (*Silver Banksian Medal*).

Messrs. W. CUTBUSH & Son, Highgate, London, had a group of forced hardy flowering plants, in which *Ghent Azaleas*, double-flowered *Lilacs*, and yellow *Richardias* were conspicuous (*Bronze Flora Medal*).

Messrs. JAS. VEITCH & Sons, Royal Exotic Nurseries, King's Road, Chelsea, had some large plants in full bloom of *Syringa pernice*, also *Magnolia obovata* *Lenne*, *M. o. purpurea*, *M. Soulangeana*, and the pretty star-like *M. stellata*.

Messrs. G. JACKMAN & Sons, Woking, staged a group of hardy herbaceous and alpine plants in flower, including varieties of *Primula Sieboldi* (*Bronze Banksian Medal*).

Mr. W. J. GODFREY, Exmouth, showed a number of plants of show *Pelargonium Emanuel Lisa*, a sport from the variety *Madame Thibaut*, which has sported many times. The one shown by Mr. Godfrey has very richly-coloured blossoms, and possesses considerable merit.

Very fine blooms of *Lapageria rosea*, The Knoll variety, were shown by Sir TREVOR LAWRENCE, Bart. (gr., Mr. Bain).

The variety was recommended an Award of Merit on June 31 last year, and was subsequently figured in the *Gardeners' Chronicle*.

Four fine flowers of *Nymphaea stellata* were shown from the gardens of LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton (gr., Mr. J. Hudson) (Cultural Commendation).

Awards.

Arabis alpina plena.—A fine double-flowered variety of the well known *Arabis*. Shown by Mr. A. PERRY, Messrs. BARR & SONS, and others (Award of Merit).

Auricula Celtic King.—An excellent border variety, yellow, with slight indication of "paste." From Messrs. BARR & SONS, King Street, Covent Garden (Award of Merit).

Canna Scrittaire Chabanne.—A very showy and attractive orange-scarlet coloured variety. From Messrs. H. CANNELLI & SONS, Swanley (Award of Merit).

Mertensia virginica rubra.—A variety with pink-coloured flowers, not red as the name would suggest. In other respects it is similar to the type. From Mr. A. PERRY, Hardy Plant Farm, Winchfield (Award of Merit).

Petunia Charlotte.—An exceedingly large, double, white variety. From Mr. P. ESKELINS, Church Lane Nursery, Romford (Award of Merit).

Rhododendron Abbey.—A magnificent, hardy, large-flowered *Rhododendron* of good form, and very delicate pink colour in the interior of bloom, with pretty veining. The exterior of flower is of deeper colour, being bright rose near the base and around the ribbed portions. From Dr. STOCKER (Award of Merit).

Sarifraga arctioides primulina.—A decided but pale shade of yellow-coloured variety of the type. From Mr. E. H. JENKINS, Queen's Road, Hampton Hill (Award of Merit).

Orchid Committee.

Present: Henry Little, Esq., in the Chair; and Messrs. Jas. O'Brien (Hon. Sec.), de B. Crawshaw, J. Colman, T. Rochford, W. Cobb, J. Douglas, H. T. Pitt, H. A. Tracy, E. Hill, J. W. Potter, J. Jaques, F. J. Thorne, W. H. White, T. W. Bond, W. H. Young, and H. J. Chapman.

The Hall was so crowded with exhibits of various classes that the groups of Orchids were distributed about the Hall, and not staged together as usual.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood), was awarded a Silver Flora Medal for an important group containing many excellent varieties. *Cattleyas* formed the showy feature, the specimens of *C. Schroderae*, *C. S. alba*, and others being remarkably good. One fine example of *C. Lawrenceana* had fifteen flowers, and among others were *C. x Wm. Murray*, and a noble form of *C. Schilleriana*, with almost wholly purplish-crimson lip. Among the *Odontoglossums* noted were the superb *O. x Wilckeanum*, Pitt's variety, with immense flowers of a yellow tint blotched with red-brown; good *O. x Andersonianum*; and among other good things were a varied lot of *Miltonia Rceili*, *M. vexillaria*, *Cypripedium bellatulum*, and other *Cypripediums*; *Sophranitis grandiflora*, *Cochlidia Noctilana*, *Phaius x Cooksoni*, and the very fine *Laelio-Cattleya x Schilleriana*, Pitt's variety.

Sir FRANKERICK WIGAN, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young), received a Silver Flora Medal for an excellent group. In it were *Cattleya intermedia*, the typical plant; a fine plant of *C. intermedia alba*, with very fine white flowers, and another white *C. intermedia* with rose lip; *Laelia x Latona* with nine flowers on a spike; *L. C. x Highburyensis*, good; a very large white *Cattleya Mendeli*, with light rose-purple lip; a pair of good *Odontoglossum Roscii majus*, with a score or so of flowers each; *Cattleya x intermedia-superba*, *C. Schilleriana*, *C. x Wm. Murray*, and *Laelia Jongheana*.

W. A. BILNEY, Esq., Fir Grange, Weybridge (gr., Mr. Whitlock), staged a very fine group of splendidly-grown *Dendrobiums*, the specimens of *D. Wardianum* on the home-made growths bearing a profusion of large flowers. The varieties of *D. nobile* were also good, and with them were *D. dianthum*, *D. revolutum*, *Burlingtonia fragrans*, *Laelia harpophylla*, *Cattleya Lawrenceana*, &c. (Silver Flora Medal).

Messrs. HUGH LOW & CO., Bush Hill Park, arranged a good group, in the centre of which the *Phalenopsis x Lady Rothschild*, certificated last meeting, showed great improvement. In the group were a good show of *Cattleya Schroderae*, *C. Mendeli*, and *C. Lawrenceana*; excellent examples of the showiest *Odontoglossums* of the season; a very large and finely coloured *Oncidium papilio*, *Epidendrum alatum*, *Cypripedium concolor-bellatulum*, &c. (Silver Banksian Medal).

Messrs. F. SANDER & CO., St. Albans, staged a group of Orchids, set up with showy *Anthuriums*, *Dracena Godseffiana*, &c. In the centre was a strong plant of the singular *Bulbophyllum barbigerum*, the feather-like labellum rising and falling in the currents of air, in a manner which always constitutes it a centre of attraction. Around it were some good *Cattleya Schroderae*, *C. citrina*, with six flowers; *Dendrobium Phalenopsis*, *Oncidium Marshallianum*, *Madevalla Schroderiana*, and other showy species.

DE B. CRAWSHAW, Esq., Rosetheld, Sevenoaks (gr., Mr. S. Cooke), showed a good selection of rare and handsome *Odontoglossums*, of which *O. x Wendlandianum Crawshawianum* (see Awards) was the most remarkable. Among the others noted were *O. crispum*, *Imperatrix roseum*, of the same large and perfect form as the white type, but of a delicate bluish-pink hue; *O. c. Lionel Crawshaw*, a finely shaped flower, blotched with purple. *O. c. Bonnyanum*, Crawshaw's

variety, with large blotches on the sepals; *O. c. nebulum* with large flowers, each segment bearing a number of blotches; and other good varieties.

Messrs. JAS. VEITCH & SON, Chelsea, again showed a selection of their hybrid *Dendrobium x Socius* (noble x *splendissimum*), which adhered closely in appearance to a very finely coloured *D. nobile*; a good *Laelio Cattleya x Wallisiana* (*C. Trianae x L. purpurata*); and *Cypripedium x locasta* (*Haynaldianum x insigne Chantini* ?). Sir JAS. MILLER, Bart., Manderston, Duns, N.B. (gr., Mr. J. Hamilton), showed *Laelio-Cattleya x Lady Miller* (*L. cinnabarina x O. granulosa Schofieldiana*), a pretty flower of a yellowish copper colour, having the base of the lip golden yellow, veined with crimson, and the front lobe crimson changing to rose towards the edge. The plant was a small one, and the Committee desired to see it when matured.

W. VANNER, Esq., Camden Wood, Chislehurst (gr., Mr. W. H. Robbins), showed as *Cypripedium x Wm. Vanner*, a cross between *O. bellatulum* and *C. barbatum Warneri*, previously shown as *C. x Leyseianum*.

WALTER COBB, Esq., Dulcote, Tunbridge Wells (gr., Mr. J. Howes), sent the fine *Odontoglossum triumphans*, Dulcote variety; *O. t. Mrs. Cobb*, *O. nebulum*, and *Cattleya Schroderae coerulescens*.

Sir TREVOR LAWRENCE, Bart., Burford (gr., Mr. W. H. White), showed a fine plant of the pendulous *Dendrobium teretifolium*, with sixteen sprays of elegant white flowers; a fine plant of a nearly white *Cattleya Schroderae* with nine flowers, and some species of botanical interest.

Mr. H. A. TRACY, Amynd Park Road, Twickenham, showed *Cattleya Schroderae regalis*, with prettily crimped petals and lip, the latter bearing a bright purple blotch in the centre.

HENRY LITTLE, Esq., Baronshalt, Twickenham (gr., Mr. A. Howard), showed *Laelia purpurata Tracyana*, a white flower with a light flush of rose colour on the lip.

JEREMIAH COLMAN, Esq., Gatton Park (gr., Mr. W. P. Bound), showed *Odontoglossum x Andersonianum*, Gatton Park variety, a large and prettily-spotted form.

R. BROOMAN-WHITE, Esq., Ardarrach, Garslothead, N.B., showed flowers of *Cattleya Schroderae*, one of which had the colours displayed as in *C. Trianae*.

M. FLORENT CLAES, Brussels, showed the handsome leafed *Physurus* (*Anectochilus*) *Origiesii*.

Awards.

FIRST-CLASS CERTIFICATES.

Odontoglossum x Andersonianum Cooksoni, from NORMAN C. COOKSON, Esq., Oakwood, Wylam (gr., Mr. Wm. Murray).—The largest and one of the finest forms ever shown. The flowers were equal in form and size to those of *O. crispum*, primrose yellow, with the sepals and petals evenly blotched with purplish-brown over the central area, those on the petals being the smaller. The lip bore one large blotch in front of the yellow crest. It is otherwise interesting as being one of the two first *Odontoglossums* obtained by Mr. Cookson, and they were in his uncle's collection some years previously.

Odontoglossum crispum "The Earl", from W. THOMPSON, Esq., Walton Grange, Stone, Staffordshire (gr., Mr. W. Stevens). A noble and distinct form. Sepals white at the base, the central two-thirds covered with two or three confluent brown blotches, the apex bluish-white. Petals fringed, white, with clusters of five or six brown blotches in the middle. Disc of lip yellow with a brown blotch in front; margin white and slightly fringed.

Odontoglossum crispum Victoria Regina, from W. THOMPSON, Esq. (gr., Mr. Stevens). A fine flower tinted with rose-purple, especially on the reverse side, the sepals and petals bearing conspicuous purplish blotches in the centre. Lip white with yellow disc, having a brown blotch in front.

Cattleya Schilleriana, Pitt's variety, from H. T. PITT, Esq., Stamford Hill (gr., Mr. Thurgood).—The darkest and finest in colour yet shown. Sepals and petals light purplish-green, with heavy purple-brown blotches. Lip almost wholly of a glowing crimson-purple, the colour extending also over the outside of the side lobes, the veining usually seen in the species on a light ground colour being almost obliterated by the colour being uniform.

AWARDS OF MERIT.

Odontoglossum x Wendlandianum Crawshawianum, from DE B. CRAWSHAW, Esq., Sevenoaks (gr., Mr. S. Cooke).—A very interesting plant, probably a natural hybrid of *O. crinitum*, the spiny crest of that species seeming to be indicated on the ovate white denticulate labellum. Sepals of a vinous-purple tint with yellow margin, and some chocolate blotches on the basal portions. Petals also tinged with claret-colour, and bearing a profusion of dark brownish-purple spots, and some bright purple lines round the column.

Dendrobium Wardianum, Fir Grange variety, from W. A. BILNEY, Esq., Weybridge (gr., Mr. Whitlock).—A very fine flower, the peculiarity being that the sepals and petals were of a bright carmine colour on the outer halves, instead of the rose-purple hue usually seen (Botanical Certificate).

Cirrhopetalum Ambulatum, from Sir TREVOR LAWRENCE, Bart. (gr., Mr. W. H. Young).—A fine plant, bearing a dozen umbels of flowers, arranged like a parasol, was shown; the flowers vary from pale green to purple.

Dendrobium macrostachyum, from Sir TREVOR LAWRENCE, Bart.—Growth of *D. Pierardi*; flowers greenish, with rose-coloured lines on the lip.

Fruit Committee.

Present: Philip Crowley, Esq. (Chairman); and Messrs. Jos. Oseal, E. Beckett, Geo. Kelf, W. J. Empson, E. Shaw Blaker, A. H. Pearson, W. Pope, Alex. Dean, S. Mortimer, C. Herrin, G. T. Miles, H. Markham, Geo. Wythes, F. Q. Lane, Jas. Smith, W. H. Divers, J. Willard, Geo. Bunyard, Jas. H. Veitch, Lionel Haulor, Whangarei, N.Z., and N. Gleeson.

From the Director of the Royal Gardens, Kew, were exhibited two fruits of *Citrus medica Melford's* var. (see fig. 86). The fruits, which had been grown at Kew, weighed when cut 2 lb. 14 oz. and 2 lb. 10 oz. respectively.

A dish of excellent fruits of the common Lemon was brought by J. T. BENNETT-POE, Esq. (gr., Mr. J. Downes) (Cultural Commendation).

Messrs. HAMMOND & JOHNSTON, Brentwood, for a grand exhibit of Royal Sovereign Strawberry fruits, were awarded a Cultural Commendation.

Mr. E. C. NORCOT showed a dish of Winter Orange-Pear, referred to on previous occasions.

Narcissus Committee.

Present: J. T. Bennett-Poe, Esq., Chairman; and Messrs. C. Macmichael, G. T. Titheridge, R. S. Sydenham, J. Boecawen, A. Kingsmill, W. Poupart, P. R. Barr, W. Ware, J. Walker, G. H. Engleheart, S. A. de Graaf, J. Pope, W. Goldring, C. Serrae Dickens, S. Eugène Bourne, and Miss Willmott.

In the collection of R. H. BATH, Ltd., Floral Farm, Wisbech, to which a Silver Flora Medal was awarded, there were observed numerous varieties of *N. incomparabilis*, including *Figaro*, *Poiteau*, a pleasing semi-transparent flower, with a pale primrose-coloured perianth, and yellow corona; *Duchess of Westminster*, with a creamy-white perianth, and primrose-coloured corona; and *Goliath*. *Narcissus Barri* varieties, included conspicuous, a very beautiful flower with a reddish-orange edging to the corona, and a perianth of pale yellow. *N. Leedsii* comprised *Grand Duchess*, the almost white Gem, and *Mrs. Langtry*. Then there were fine blooms of *N. Horsfieldi*, *Countess of Annesley*, *Madame de Graaf*, *Madame Plamp*, *Glory of Leyden*, *Haddock Pride*, a bold handsome bloom; *Weardale Perfection*, *Incomparabilis*, *Prince of Teck*, *sulphureus plenus*, all of which were extremely fine flowers. The stand as a whole was particularly remarkable for evidences of intelligent cultivation, a favourable soil and climate, and for choiceness of the varieties.

Messrs. J. VEITCH & SONS, Ltd., The Royal Exotic Nurseries, Chelsea, exhibited a very extensive collection of *Narcissus*, in which the following were the more prominent varieties: *Bicolor Victoria*, very showy as staged, that is, in groups; *Stella*, *Emperor*, *Bicolor Empress*, *Duchess of Westminster*, *Madame Pleny*, *Theodora cristata*, a cross between the trumpet and *Incomparabilis* sections, in which the yellow cup measured 1½ in. in diameter and ¾ inch in depth; the creamy-white perianth having a stretch of 4 inches; *Princess Mary*, *Lydia*, *Chelsea Gem*, *Nelsoni major*, posticus posticum, the bright-cupped *Flora Wilson*, *Kathleen Spurrell*, *Sir Watkin*, and *Mrs. Walter T. Ware* (Silver Banksian Medal).

Mr. H. J. JONES, Hither Green, Lewisham, exhibited a group of moderate size, the blooms set up in tallish bouquets, most of which consisted of well developed varieties. We remarked *N. incomparabilis Stella superba*, possessing a perianth of stellate form, 5 inches in diameter, and a broad shallow-bright yellow corona; *N. Sir Watkin*, *N. Beauty*, an entirely creamy white bloom; *N. bicolor Victoria*, *N. Leedsii*, *Mrs. Langtry*, numerous varieties of *Polyanthus Narcissus*, *Leedsii* (doubled-flowered), *Emperor*, &c. (Silver Banksian Medal).

Messrs. BARR & SONS, 12 & 13, King Street, Covent Garden, staged a large collection of varieties of *Narcissus*, taking a Silver Banksian Medal for the exhibit. The collection was representative of most sections of the genus, but they were forborne to mention any but those that are new or rare, viz., *Almira*, belonging to the posticus group, and possessing a perianth of much substance, the segments broad and overlapping each other; *Grandis*, a fine trumpet variety, with a bright yellow-coloured, elongated, cylindrical corona; *Madame de Graaf*, a creamy-white perianth and cup of the palest yellow; *Duchess of Westminster*, *Nelsoni aurantiacus*, and *General Murray*. A lot which was shown as new and choice varieties comprised *Golden Nugget*, *Gloria Mundi*, *Apricot*, *Monarch*, *Lucifer*, *Weardale Perfection*, *Maggie May*, *Stella superba*, *Chaucer*, all of which found admirers among the visitors. A few mis cellaneous *Iris*, *Crown Imperials*, *Graps-Hyacinths*, &c., were included in the group.

The Rev. G. H. ENGLEHEART, Appleshaw, Andover, staged a very choice group of seedling *Narcissi*, and to three of these Awards of Merit were recommended.

Messrs. G. JACKSON & CO., Woking, also showed a collection of *Narcissus* blooms.

Awards.

First-class Certificates were awarded to the varieties *Mrs. Berkely* and *Countess Grey*, from Miss WILLMOTT; to *Dorothy Kingsmill*, shown by Mr. A. KINGSMILL, The Holt, Harrow Weald; and to *Giant*, shown by VAN WAVEREN & SONS.

Awards of Merit were recommended to *Chancellor*, *Diana*, and *Virgil*, from the Rev. G. H. ENGLEHEART, Appleshaw, Andover; *Chas. Wolley Dod* and *Eleanor Berkely*, from Miss WILLMOTT; *Olympic*, from Messrs. V. WAVEREN; and *Wilhelmina*, from Messrs. DEGROOT & SONS.

A description of the above varieties will probably be published in our next issue.



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THE DAUGHTERS OF THE YEAR.

II.—APRIL.

"Yesterday the sullen year saw the snowy whirlwind fly,
Mute was the music of the air, the herds stood drooping by;
Till April starts, and o'er the scene scatters his freshest,
tenderest green."

OLD style prevailed when this charming ode was written: the incoming of April, twelve days later than at present, was often synchronous with spring. Not so this year. March laid her cold dry hand upon the first half of the month which followed; eleven sunless days and frosty nights yielded to five days more of furious blighting wind, the "pestilent south" of which Horace speaks, which parched the bloom of double Daffodils, and snapped off many at their base. Finally, on Bank Holiday, in thunder, lightning, hail, came winter's parting throes, and we awoke upon the 17th to find ourselves in spring. Nature sprang to meet it; one saw the flowers grow. Slender green spikes of *Convallaria*, lumpy liver-coloured shoots of *Paeony*, shot up two inches between morn and night. Tortoiseshell butterflies perched amid Grape-Hyacinths, a daring harmony of colour; racemes of yellow *Epimedium* rose in advance of their foliage from the bare ground. Outside the garden all the hedges were in two days gemmed with green; pink Larch-buds and

white Blackthorn burst; a thousand stars of *Celandine* shone out in varnished glory, where only a score had shone before, to greet the first preliminary whisper of the ever-welcome chaff. On Easter-day we had walked from church beside a steep bank, grey and lifeless; we consoled ourselves with the few open Dandelions, and quoted Lowell's lines. The Sunday after, on the same bank, behind a cage of Bramble breaking into leaf, under climbing Hariff (*Galium Aparine*) and *Alliaria*, a thick bed of Fern-like Fool's Parsley was spangled with blue flowers of Ground Ivy: "Once more the Heavenly Power makes all things new."

The garden queen of April is the great Fritillary, or Crown Imperial, standing 4 feet high, the thirty leaves on its thick octagonal stem topped by eight to ten inverted bells, yellow, red, or orange. I remember the strange sensation with which, as a child, I peeped into the flower, and saw its six transparent tear-drops hanging and ready to fall. Later on, I found that Shelley had seen them too—

"That tall flower that wets,

Like a child, half in tenderness and mirth,
Its mother's face with heaven's collected tears,
When the low wind, its playmate's voice, it hears."

It bears a part in the myths which clustered round Christ's Passion—the Crossbill, the Sudarium, the Wandering Jew. On a day in the Holy Week Christ walked through the Garden of Gethsemane. All the other flowers bowed their heads; this alone stood stiff and unconcerned. The Saviour stopped and looked at it; tears like those of remorseful Peter flowed from its nectaries, and have never ceased to flow. It is a fastidious plant; comes up flowerless when set near tree roots, grows best in clumps; brittle as sealing-wax, requires careful staking in a wind-swept district. Near it in our garden grows its sister *F. meleagris*, brought long ago from the classical Isis meadows—

"I know what white, what purple Fritillaries
The grassy harvest of the river-fields
Above by Eynsham, down by Sandford, yields."

Not less conspicuous, and more lasting, is the Leopard's-bane; we cultivate two sorts, *D. caucasicum*, and *D. pardalianches*, splendid both in the last week of April, blossoming till the end of May. Under the *Ilex*, amid seedling and dishevelled Winter Aconite, are fine patches of the pretty *Corydalis* or *Dialytia formosa*. A terraced rockery by the gate, which masks an ugly wall, clad with Harts-tongue through the summer, bleached earlier with Snowdrops, is now a mass of Wood Anemones, brought from a neighbouring copse; while just beyond is a clump of the lovely blue Apennine Anemone. These, like the Crown Imperials, carry their tear-legend: the Anemone, as we ought to call it, was born of Venus' tears for her lover's death, as the Rose sprang from his blood.

But with us, as everywhere else, *Narcissus* forms the staple of the April beds. I grow the old double Daffodil for show, Tazetta for decoration, Horsfieldi and Sir Watkin for experts, Pheasant's Eye and biflorus for old-fashioned Corycians like myself, and so on to the sweet little hoop-petticoat and the pigmy Nanus. The *Narcissus* was not always a Daffodil, to the Greeks it was a Hyacinth. In the *Œdipus* chorus it forms the clustering chaplet of the great Hades goddesses; Proserpine was gathering it in the field of Enna, when herself was gathered and borne down to hell by gloomy

Dis. It was the "hell-flower" (Sanskrit *nark*), whose heavy odour blunts and narcotises the sense. By-and-by sprightly Ovid told the story of the youth sick of self-love by the river's brink, and all the later poets followed him. The "Aphodilly" of old herbalists, corrupted from the Greek *Asphodel*, was lengthened into the daffadowndilly of Henry Constable's delicate love-song to his Diaphenia, became the "chequ'd and purple-ringed daffodilly" of Ben Jonson. Milton, imitating Virgil, makes "daffadillies fill their cups with tears" over the laureate herse of Lycidas. To Shakespeare, and to Herrick, they are plain Daffodils; Shelley sees joy for ever in "Daffodils and the green world they live in." Tennyson popularises them into "gay Lent Lilies;" Wordsworth, catching Dorothy's enthusiasm, and stimulated by his wife's one poetic outbreak, celebrates with unwonted and contagious glee the dancing yellow belt, which still, I am told, shines out every spring beside the lake at Gowbarrow.

They are not continuous in my garden, but broken and set off by clumps of Hyacinth and Tulip; the Hyacinths, discarded from pot-culture, recovering themselves in good soil, and blooming grandly if well staked betimes; the Tulips, placed with regard of colour not of rarity and selection, except that, in one sheltered corner, none, much loved and looked for, a group of *Tulipa sylvestris*, brought from a Surrey garden. As the month ends, all these are passing; the succession of garden colouring is already taken up by the Wallflowers. Pure yellow and wild we have them—

"Flower of the solitary place,
Grey ruin's golden crown,"

from Valle Crucis, from Denbigh Castle, from the crumbling Abergavenny walls. One great patch in the reserve ground, left purposely to a second year, pranks a gorgeous level mass of brown and yellow, all day murmurous with bees; the rest are the regulation "gillyvors, which some call Nature's bastards," sown each summer and pricked out in the autumn, with white and purple Honesty amongst them. The Primulas, too, begin to make a show, in every variety of Polyanthus, gold-laced, maize, deep yellow, with Oxlips not a few, an occasional Hose-in-hose, and plenty of the old double mauve and white. They edge the borders, with white and crimson double Daisies interspersed. The main herbaceous ground shows chiefly foliage so far; but the pretty Bitter-vetch is radiant, as is Lung-wort; the curious *Zizia californica*, from Chelsea Physic Gardens, where it grows a weed, is in bloom under the wall, and the great *Megasea cordifolia* spreads its solid bronze leaves, sending up coarse, thick-stemmed, showy blooms of a shade between salmon colour and lilac. More I had marked to notice, but Sam Weller's recipe for letter-writing holds good with serial exposition, and on the "genteel principle" which guided him, I close my April record. *Corycius senex* (Lincolnshire).

NEW OR NOTEWORTHY PLANTS.

CALENDULA NOËANA, BOISSIER.*

SEEDS of this plant, obtained from the neighbourhood of Constantinople, germinated last spring at Mellefont, Bromley. The seedlings, kept for some weeks in a moist hothouse, threw up lanky and sparsely-flowering shoots, but upon removal to an open border during the summer, they soon

* Boissier, *Flora Orientalis*, vol. III. (1875), p. 417.

became vigorous, spreading well, and flowering and fruiting in profuse fashion, and this continued until the border was cleared for the winter. Seeds which had been kept from last season were sown a short time ago, and Mr. Stacey, the gardener, has now a nice stock of healthy seedlings under his care.

The value of this Marigold lies in its beauty, and the ready way in which, once well set, it will spread and produce flowers. Before fruiting, it is so like the Corn-Marigold (*Chrysanthemum segetum*), that even a botanist might mistake it; but the achenes are, of course, quite different in the two cases. Bearing in mind its hardiness and easy propagation, it is remarkable that its native area should be so restricted. Boissier gives *Rumelia* alone as its native country, and neither at the British Museum nor at the Kew Herbarium are the specimens from places outside that province. It does not seem to have been previously cultivated in this country. *Spencer Moore*.

ORCHID NOTES AND GLEANINGS.

DENDROBIUM CHRYSÆUM.

Flowers and pseudo-bulb of this singular and little-known species are kindly sent by W. Cator, Esq., The Cedars, Upper Tooting. The pseudo-bulb, some 18 inches in length, is uniformly slender, and the flowers in this case are borne singly, though in former examples we have seen two flowers to the inflorescence. The flowers are as large as those of a good *D. fimbriatum*, and have the strong, hay-like scent of those of *D. moschatum*. They are of a rich orange-yellow, the pubescent lip being darker on the disc, and having some indistinct crimson lines at the base. The species is said to be a native of Assam, and when well grown and flowered would form attractive plants.

CATTLEYA × WILLIAM MURRAY.

This showy hybrid between *Cattleya Mendeli* ♀ and *C. Lawrenceana* ♂, raised by Norman C. Cookson, Esq., Oakwood, Wylam, was staged by him at the Temple Show, May 25, 1893, when it secured a First-class Certificate. Since then the plants have increased in strength, and in the size and beauty of their flowers, and at present it is one of the showiest hybrid *Cattleyas* flowering at this season. A good example of it is flowering in the Right Honourable Lord Rothschild's gardens, Tring Park (gr., Mr. E. Hill), where it is remarked that its flowers are not only very beautiful, but that they last well. The sepals and petals are light lilac-rose, the broad, crimped front lobe of the lip of a delicate rosy-mauve tint. It is a very free grower, and a great advance on *C. Lawrenceana*, which is not easy to cultivate.

ORCHIDS AT "THE CEDARS," HARROW WEALD.

It is often observed that in gardens where Orchids are cultivated in small numbers, old favourite species are found in finer condition than in Orchid-houses at places where a large collection is maintained. At The Cedars, Harrow Weald, the residence of F. Blackwell, Esq., where plants generally and fruits are grown to perfection by the gardener, Mr. J. Dinsmore, many examples of fine Orchid culture may be observed. The plants are mostly grown in the plant-stove, though, when necessary, those requiring rest are taken for the dry season to the cool vinerias and other houses. The result of this mode of cultivation is vigorous growth and very fine flowers. A group in flower in the plant-stove at the present time consists of excellent specimens of *Dendrobium densiflorum*, each with many densely-flowered racemes of its orange-coloured flowers, such as were far more common twenty years ago than at the present day. In spite of the advances which the art of cultivating Orchids has made since then. Associated with them, most of which are also Burmese Orchids, are fine examples of *Cymbidium Lowianum*, *Cypri-*

pedium villosum, and *C. Boxalli*, each with many flowers; *Dendrobium pulchellum*, as it used to be called, that pretty cushion-like plant covered with rose-coloured flowers, having a centre of an orange tint, which was named by Professor Reichenbach *D. Seidelianum*, and about the same time *D. Loddigesii* by Mr. Rolfe; a singular form of *D. palpebræ*, with abnormal shape of the labellum, a character which is fixed; good plants of *D. primulinum*, and finely coloured *D. nobile*, and other species of *Dendrobium*. Other fine old species well represented are the fragrant *Bifrenaria Harrisonia*, good *Lycaste Skinneri*, some well-flowered *Odontoglossum cirrosum*, and plants of a remarkably handsome form of *O. Lindleyanum*, in which the base of the labellum and wings of the column are showily decorated with bright purple. Showy specimens of *Oncidium sphacelatum*, which used to be one of the telling exhibition plants in the palmy days of Chiswick, a few *Cattleyas*, *Acineta densa*, *Masdevallia bella*, and two or three other *Masdevallias*, &c.; the whole very effectively arranged with the Palms and foliaged plants, for which the house was really constructed. On one side is a vigorous batch of *Miltonia vexillaria* with flower-buds, an equally good lot of *M. Roezli* in bud and flower, and many other examples of good cultivation.

The other plant and fruit-houses are in excellent condition, the conservatory brilliant with bright flowers, and in the bulb garden a great display of Tulips, which have come very evenly this year.

CUCUMBER-PLANTS GOING OFF AT THE SURFACE OF THE SOIL.

"We have sent you Cucumber-plants with soil attached. Will you kindly let us know, if you can, the cause of their going off at the top of the soil when planted in some of our houses? We have planted over three or four times. When the plants have been taken up, the roots appear to be in good health. We have also sent you a sample of one in pot before planted, the roots seem to die away. We have also sent you some leaves and stems from a plant in one of our houses. Would you kindly give us your opinion on same? We have also sent sample of water we use. *Some Cardiff Correspondents*."

We append the answer of Dr. W. G. Smith, a well known authority on fungus diseases affecting plants:—

"A PREVALENT DISEASE OF CUCUMBERS.

During the present season several specimens of a Cucumber-disease have been received by the *Gardeners' Chronicle* for advice. The disease appears to be common indoors, and has already given considerable trouble. Attempts to locate the cause were unsuccessful, owing to fragments of stems with leaves being sent; or, where plants with roots were despatched, they arrived dry, mouldy, and otherwise difficult to examine. At last some specimens came of young plants in the soil, all carefully packed. The chief symptom of the disease is a sudden drooping of apparently healthy plants, generally in different places in the same house. The foliage looks healthy; the roots newly dug up are said to be also healthy; but all the plants we have seen showed a discoloured neck at the junction of root and stem, on the level of the surface of the soil. Two plants of the specimens last received were treated in different ways, as follows: the soil attached to one was thoroughly damped, and the plant placed in a moderately damp box; the other was placed in a much moister receptacle. In two days the discoloured part of the neck in both plants bore the damping-off fungus (*Pythium*), the roots were rotten and mouldy, and the leaves were covered with blue mould. Other cases previously received also showed damping-off fungus along with other moulds. The canker of the neck and the constant occurrence thereof damping-off fungus, point to this as the cause of the disease. The species of fungus is probably

Pythium Debaryanum, the common pest of seedling-pans. This disease has already been recorded as attacking young Cucumber plants, but it is not regarded as a common enemy of this crop; during the present season, at least, it has caused much trouble.

The appearance of *Pythium* in the Cucumber houses will be partially explained by a brief summary of its life history. It has thick-coated resting spores, which, judging from the frequent damping-off amongst seedlings, must be abundant in all gardens or wherever plants are growing. These spores germinate in damp, badly ventilated places, especially where moderately warm; in all plant-houses they must be continually germinating. The fungus can maintain itself on decaying vegetable matter, such as is abundant in all rich soils; if, however, it comes in contact with living plants in a tender condition, with the outer skin, as it is in seedlings, still unhardened, then it attacks the plant and gets inside it, attracted by the nutritious substances present there. Thus it comes that *Pythium* appears first at the neck of the plant on the ground level. The seedling is soon girdled, and the upper parts deprived of nourishment then droop; the soft, rotting neck can no longer support the stem upright, so it topples over, and is soon covered with the damping-off fungus, and various other moulds. The growing *Pythium* produces numerous spores of another sort; these were abundant on the specimens of Cucumber examined, and by them the fungus was identified. Figures of the various stages of damping-off fungus are given in most books on diseases; the best are those in Professor Marshall Ward's little book on *Diseases of Plants*.

The question arises, why is this damping-off of Cucumbers so prevalent this season? We think the cold spring has caused the houses to be heated longer than usual, and to be less frequently ventilated than during a season with more sunny days and warmer winds. The plants as a result have grown up softer, and the moist warm air indoors has favoured the fungus.

PREVENTION.

Ventilation is the chief preventative. With effective ventilation the air is kept circulating and rendered drier, two conditions unfavourable to damping-off fungus. Successful raisers of seedlings know the value of ventilating, and means must be invented to secure it. The fungus is also favoured by rich soils, but it lives chiefly on or near the surface, and this suggests a further course of treatment. If the soil be covered with a thin layer of soot, or fine ash-dust mixed with lime, this top layer will contain no vegetable remains favourable to the growth of the fungus. A little powdered sulphate of iron or sulphate of copper (both easily procured and cheap), mixed with the top soil, would make it injurious to the fungus, but care must be taken that the quantity of fungicide be not enough to poison the roots. The preparation sold as 'Veltha,' used as a top-dressing, is said to give good results, its action is the same as the mixture of soot, &c., given."

BRITISH FORESTRY.

(Continued from p. 258.)

III.—THE PRODUCTION OF HIGH-CLASS OAK, ASH, AND LARCH TIMBER.

FIREWOOD being of small value in Britain, timber trees should be reared in such a manner that they yield the highest possible percentage of high-class timber, and a correspondingly small quantity of wood which is only fit for fuel. In this respect the above-mentioned three species differ very considerably. Larch produces naturally a high percentage of timber; Oak, on the other hand, will spread out horizontally, if not prevented from doing so, producing a short stem and large head, and yield only a poor percentage of timber, accompanied by a high proportion of firewood.

Ash stands between Larch and Oak in this respect; and yet the rearing of these three species has much in common. All are light demanding, especially the Larch; all are thin crowned, and none of them improves the yield capacity of the locality if raised in pure woods. The best way of rearing them is to mix them into a shade-bearing, full-crowned species. Of these, Beech is the best. In mixture with Beech, the above-mentioned three timber trees find all the advantages of a permanent and complete shading of the ground, a heavy fall of leaves, followed by a thick layer of humus, and freshness of the soil throughout summer. The competing Beech forces the other species to push upwards, kills off their lower branches, and causes them to produce long, straight, clean boles of high value. Woods of this kind require, however, the

For the purpose of giving the Oak a start, it may be grown pure in the first instance. It will fairly shelter the ground until it begins to thin out, which generally occurs according to local conditions between the age of forty to sixty years. Up to that age the wood should be kept dense, so that tall, clean stems may be produced. About the age of forty somewhat heavier thinnings should commence, giving to the more promising Oaks gradually more growing space. Then a specially heavy thinning is made, and the area under-planted or sown with Beech. The young Beech are very grateful for the shelter of the Oaks during several years. Then more thinning may take place, leaving the most promising Oaks in such numbers that the Beech below them has sufficient light to come up. Both crops are then allowed to run through

intrude itself into the Oak groups as soon as they begin to thin out above, thus establishing an under-wood of Beech in the Oak groups. In this way, again, fine Oak can be produced, and the increment per acre can be kept at the highest possible rate.

Instead of Beech, the Silver Fir has been used for under-planting Oak woods, a method which has given very good results. In somewhat moist places, Hornbeam has taken the place of the Beech; Spruce has also been used, but it is not so good as the others, as the Oak is liable to become stag-headed. The mixture is admissible under favourable conditions, or where the Spruce is to be cut out at a comparatively early age. I have also seen a few cases where the Oak has been under-planted with Weymouth Pine, and with fairly good results.

The rearing of Ash and Beech in mixture can be done as in the case of Oak and Beech. The Ash is either grown pure, and subsequently at the age of twenty to thirty years underplanted with Beech; or the two are started at the same time. In the subsequent thinnings, the Ash is duly protected against any attacks on the part of the Beech. Frequently Ash and Oak are planted together, mixed, and subsequently underplanted with Beech or Silver Fir.

The rearing of Larch in Beech is of special importance, now that the Larch disease has spread over the length and breadth of Britain. This is not the time and place to enter upon the causes of the disease; suffice it to say that its rapid spreading is due to the indiscriminate planting of pure Larch, especially in localities which are not thoroughly suited to the species. It is now recognised in Britain that Larch should only be planted in favourable localities; that is to say, in a fairly rich soil, and on cool aspects. Even then the formation of pure Larch woods is dangerous, because, if the disease breaks out, it will rapidly spread over the whole wood. Hence, Larch should be mixed in moderate quantity with another species, which, as it were, separates the individual Larch-trees. None is better than Beech. Here the Larch has its last chance. The procedure is to plant a limited number of vigorous Larch plants into Beech, and let them grow up together, protecting the former sufficiently during the thinnings, as it requires to have its head freely exposed to the sun.

Unfortunately very extensive areas of young pure Larch-woods are found in Britain. Only the other day, the forester of a large landed proprietor in the Midlands appealed to me for advice, what to do with some 2,000 acres of young Larch, frightfully diseased. Cases like this are very sad, and I believe the only chance of saving some of the trees as yet unattacked is, to cut out as quickly as possible all diseased Larches, and to under-plant with Beech, thus preserving healthy conditions for the further development of the remaining trees. Instead of Beech, such woods may be under-planted with Silver Fir, whenever the latter is likely to give better financial result. Douglas Fir may also be tried, and ought to do well, since the remaining Larches will give it just that shelter which the leading shoots of the Douglas Fir so much require. Even Weymouth Pine may be used for this purpose. I have myself under-planted Scotch Pine with that tree, and the results are everything that can be desired. If the Weymouth Pine does well under Scotch Pine, it will do still better under Larch, as that tree gives a lighter cover than the Scotch Pine. *W. Schlich, Cooper's Hill, Englefield Green, Staines, April 15, 1900.*

THE NEW CHISWICK.

It may not be inopportune when the question of a "New Chiswick" is occupying the attention of the Fellows of the Royal Horticultural Society to ask you to find space in this week's issue of the *Gardeners' Chronicle* for the accompanying notes on the Chiswick trials. These notes I communicated, with the consent of the President, to each member of the



FIG. 88.—*ODONTOGLOSSUM* × *WENDLANDIANUM* CRAWSHAYANUM.

Recommended an Award of Merit at a Meeting of the Royal Horticultural Society on April 24.
(See p. 4 of Supplement to last week's issue.)

careful attention of the forester, especially in the case of the Oak. I propose, therefore, to deal first with the mixture of Oak and Beech.

OAK AND BEECH IN MIXTURE.

These two species stand sufficiently near each other as regards their demands on the locality. No doubt Oak prefers a somewhat moister soil than Beech, but the latter accommodates itself to the former; as a matter of fact they are growing and thriving together over extensive areas. The principal difficulty to contend with is their relative height-growth. In some localities the Oak keeps pace with the Beech, but in the majority of cases the latter is faster growing after the first few years, and, if unchecked, kills out the Oak. In the former case, the Oak can be mixed singly into Beech woods, care being taken in the thinnings to help the Oak whenever necessary. In the second and much more frequent case, the Oak must either be given a considerable start of the Beech or placed into groups, or both.

a full rotation, favouring at all future thinnings the development of the Oak. In this way a crop of mature Oak and Beech is obtained, the age of the former being some fifty years more than that of the Beech.

The sound method of rearing Oak in Beech woods is to place the former into groups, surrounded by a sea of Beech. For the Oak, the most favourable spots should be selected, where the soil is deep, and the aspect favourable. These spots should be sown with acorns, or densely planted with young Oak plants but one-year old. As soon as they are well established, the remaining parts of the wood should be stocked with young Beech, either naturally or artificially, according to circumstances. The size of the Oak groups varies much. If they are too small, the Beech does much damage along the edges; if too large, the advantages of the admixture of Beech are practically lost. In my opinion, the area of the Oak groups should lie between one-quarter and 1 acre. In the natural course of events, the Beech will commence to

Council in March last, and Sir Trevor Lawrence then suggested that there would be no objection to my publishing them if I cared to do so.

I am conscious that after many influential persons have expressed the view that a "New Chiswick" is necessary, it is perhaps presumption on my part to offer a contrary opinion; but it may not be too late even now to ask whether the purchase of a new garden is certainly the best means of celebrating the Centenary of the Society.

We have still twenty years of the Chiswick lease unexpired. Can we not make the best of Chiswick for at any rate some years to come, and devote our energies to obtaining by some means or others the new horticultural hall, which is so sadly needed for the fortnightly shows? From the crowded state of the Drill Hall, both as regards the exhibits themselves, and the visitors, it must appear to everyone a necessity that some other place be found before long. This is as necessary for the work of the various Committees as for the shows, and I cannot doubt that if £27,000 was raised, or promised, several years ago, a much larger sum could now be raised, when the Society has reached a degree of popularity and success never before known, at least in recent years.

P.S.—As mentioned by Mr. Elwes at the general meeting on the 25th ult., I have most reluctantly resigned my seat on the Council of the Society, to which I was elected at the annual meeting in February last, as I was unable to endorse the recommendations of the Council embodied in the resolutions which the general meeting was called to consider.

NOTES ON THE CHISWICK TRIALS.

For the last twenty years I have taken a personal interest in these trials, and have had ample opportunity of watching them both as a member of the Fruit Committee and as an ordinary Fellow of the Society. My connection with horticulture alone would be sufficient inducement to keep myself in touch with the various trials conducted at Chiswick from year to year.

I have therefore been able to appreciate the conscientious work done both by the officials at Chiswick, and those members of the Fruit Committee who have attended the meetings at Chiswick, and in any remarks I may make I wish very clearly to say that I am sure they have, one and all, carried out the tasks allotted them as ably as the circumstances of the case permitted.

I am confident, however, that all those members of the seed trade who have themselves devoted much time to raising novelties or testing novelties on a large scale, would agree with me that in recent years no series of trials at Chiswick of vegetables has been so complete as to warrant the Committee in awarding a certificate to any so-called new variety on the ground that it is distinct from or superior to existing varieties. I know this will seem a very sweeping assertion, but at the present moment, when it is suggested that new gardens should be acquired for the purpose of continuing these trials, I think it essential this fact—if it be a fact—should be brought to the notice of those who have the framing of the Society's policy, even at the risk of appearing to press unduly the opinion of one who has only just joined the Council.

The reasons for this opinion are:—

(i.) In no case do the trials at Chiswick contain anything approaching the number of standard sorts which an experienced seedsmen knows to be essential if the superiority of a so-called seedling or novelty is to be accurately gauged.

In the case of Peas, I should myself consider a standard collection of 300 or 250 varieties none too many with which to compare a reputed novelty before taking the responsibility of offering it as new, distinct, or superior.

Again, in the case of Potatoes, the standard or reference collection should contain from 250 to 300 varieties to enable even an expert to adjudicate upon a so-called new seedling submitted for award.

By way of illustration I may take the following figures from my trial-book for 1899:—

Peas. Total number of trial rows	684
Including seedlings for examination	288
Including other distinct varieties	155
Potatoes. Total number of trials	1227
Including seedlings for examination	466
Including other distinct varieties	403
At Chiswick last year the numbers were—	
Peas. Old sorts for comparison	9
New varieties for award	46
Potatoes. Old sorts for comparison	25
New varieties for award	46

Trials of other vegetables require to be tested in the same complete and exhaustive manner if any definite results are to be obtained. I do not care to refer again to my own trial-book, but the following figures give some idea of the amount of labour which would be required at Chiswick if trials of vegetables and flowers were carried out with a view of determining whether so-called novelties or seedlings were superior to those already existing:—

Tomatoes: Total number of trial rows (including 87 separate varieties)	243
Lettuces: Total number of trial rows (composed of 198 rows spring-sown for summer cutting in 94 varieties, and 78 rows autumn-sown for spring cutting in 70 varieties)	276
Cauliflowers: Total number of trial rows (composed of 164 rows spring-sown for autumn cutting in 57 varieties, and 71 rows autumn-sown for spring cutting in 50 varieties)	235
Onions: Total number of trial rows (composed of 237 rows spring-sown for autumn use in 63 varieties, and 99 rows autumn-sown for spring use in 50 varieties)	336
Cabbages: Total number of trial rows (composed of 255 rows spring-sown for autumn cutting in 75 varieties, and 180 autumn-sown for spring cutting in 70 varieties)	435
Broccoli: Total number of trial rows (including 46 separate varieties)	157
Dwarf and Runner Beans: Total number of trial rows (including 136 varieties, of which 40 are not yet in commerce)	235
Broad Beans: Total number of trial rows (including 35 varieties)	85
Asters: Total number of trial rows (including 270 varieties)	367
Stocks: Total number of trial rows (including 161 varieties)	187
Sweet Peas: Total number of trial rows (including 230 varieties)	253

(ii.) Secondly (and I wish to say it with all courtesy to those who form or have formed the Fruit Committee) it is practically impossible for the Committee, as a body, to be possessed of the requisite technical or expert knowledge to enable them to judge accurately.

Even those who are practical gardeners have never grown or seen growing in private gardens anything like all the varieties in commerce, and cannot therefore know personally the comparative merits of so-called novelties. I think I am within the mark in saying that a gardener in even a large establishment seldom grows more than fifteen to twenty-five varieties of Peas. Besides this, a gardener generally (not universally) compares himself with the varieties offered by one seedsmen, and knows but little of those offered by the many others in the trade.

Unless the members of the Committee were almost daily inspecting the trials of the larger seed-houses, where for the necessities of the trade it is essential that all existing sorts should from time to time be tested, and where the Pea trials number from 500 to 1000 rows, they could not obtain the technical knowledge required.

(iii.) Thirdly, because it is not sufficient to visit trials two or three times during the season. To ascertain the comparative merits of new and old varieties, Pea trials need to be closely watched day by day, from the day they bloom till after they are matured, a period of six to eight weeks elapsing between the earliest and latest sorts, according to the character of the season. And what is true of Peas is true more or less of other vegetables.

(iv.) Because only comparatively a small number of the Committee can find time to go to Chiswick even two or three times during the season.

It may then fairly be asked why, if such is the case, have none of those most intimately concerned ever called the attention of the Council to the doubtful utility of these trials?

I can only suppose that it was felt that the Council might not readily give up what was generally supposed to be a valuable part of the Society's work. Also that Chiswick existed, and it was supposed to exist for these trials (and other purposes), and having their own trials conducted at very great outlay of money, time and energy, it would appear ungenerous to call in question the self-denying work of very able men.

For myself I may say that it is only the proposal to move to another spot where similar trials would be conducted, and where the Committees could only attend with still greater inconvenience, that has led me to express my views.

I have gone thus fully into the details of various trials in order to explain my reasons for thinking that the Chiswick trials do not and could not, as at present carried out, confer any real benefit on horticulture, or at any rate no benefit commensurate with the annual cost—about £1,400. If the present garden is retained, or a "new Chiswick" acquired, I would suggest that, instead of comparative trials, standard collections of the leading vegetables and flowers should be grown, so far as space and funds permit, for the interest and information of the Fellows. I do not, however, forget that the Gardens exist for other purposes besides trials of vegetables and flowers, but I am not at all sure that the collection of fruit-trees, Vines, &c., is so complete and up-to-date as to be a reliable guide to Fellows wishing to learn the best sorts for planting.

(Signed)

ARTHUR W. SUTTON.

THE LIMPSFIELD SITE.

I AM desired by the President to forward to you copies of the reports of Messrs. Beckett, Bunyard, Paul, and Poupert, on the proposed Limpsfield site. From these reports, to which special reference (not reported in your paper) was made by the President at the meeting on the 25th ult., it will be seen that they are in most respects favourable to the site for the purposes for which it is required, and that they by no means confirm your statement that their "result is virtually identical" with Mr. Sutton's conclusions.

In the interests of the Society it is desirable that the Fellows should be afforded full means of judgment as to the suitability of such sites as may be recommended by the Council for the new gardens. I have therefore to request you to publish the enclosed in your next issue.

I am to add that there is no foundation whatever for Mr. Sutton's statement [in a telegram read to the meeting] that "probably no meeting to consult the Fellows would have been called but for my action in council." The Council have from the first recognised that as a matter of course the Fellows must be consulted before a new site for the gardens of the society was decided upon; and the President has made emphatic statements to that effect, both in council, in Mr. Sutton's presence, and in letters to that gentleman and others. W. Wilks, Secretary.

REPORT ON PROPOSED SITE FOR NEW GARDEN AT LIMPSFIELD, NEAR OXTED, SURREY (KNOWN AS CHARTLAND FARM).

"I visited the above site on Wednesday last, April 18, as requested, in company with Messrs. Bunyard, Paul, and Poupert. We carefully investigated the site, and I beg respectfully to submit my report on same.

Arable field, marked on plan 344, test-hole No. 1.—A good depth of heavy loam resting on strong sandy clay subsoil. No. 2 test-hole do., do. Position south and south-west, protected from north and east; unquestionably very suitable for Strawberry culture.

Field marked on plan No. 343, sloping to south-west, test-hole No. 3, practically the same as the last.

Field No. 323, facing south, test-hole No. 4.—Slightly lighter and better depth of surface-soil; a small portion of this field is water-logged owing to the watercourses being blocked.

Field No. 342, grass pasture, south aspect, No. 5 test-hole.—A similar kind of soil to the last, and also badly drained.

Field No. 324, grass pasture, sloping to south-west, No. 6 test-hole.—Fully a foot of surface strong loam of good quality; subsoil, sandy clay. We tested this field at four stations, and found it to be all of about the same quality.

Field No. 310, now cultivated as a Hop garden, on southern slope, test-hole No. 7.—Excellent depth of surface-soil of a much lighter quality. Test-hole No. 8 about the same nature as foregoing.

Field No. 311, arable, good, light sandy loam, resting on rock falling rapidly to south-west; about half way down a better depth of soil, and of superior quality.

In my opinion nearly the whole of the land requires to be thoroughly drained; no difficulty should be found in carrying this out, as the lie of the land lends itself admirably for this purpose. Most of the land also is in a very poor condition, and would require thorough cultivation and manuring, the variety of soils and positions would make the site an admirable one for an experimental garden. The whole of it is particularly well situated and protected from north and east winds, and hardly any fruits, flowers, or vegetables should fail to do well upon it—Rhododendrons perhaps excepted.

I consider it an ideal soil for all kinds of vegetables; and apparently a good supply of water could be stored, and a delightful bog and water-garden might be formed. The climate appears to be all one could wish, and the site could be made interesting and beautiful. Edwin Beckett, Aldenham House Gardens, Elstree, Herts."

"Aspect of the farm.—The upper portion of the farm is some 400 feet above the sea, and falls gradually to some 300 feet, the whole (speaking generally) having a most desirable exposure to the south.

Shelter.—The estate is naturally sheltered from the north and east by the adjacent hills and woodland, and the spinneys and tall hedges provide all the shelter required for fruit and vegetable crops.

Soil.—I took notes of the soil in about eighteen positions; but as some trials were exact duplicates, I only record nine instances.

Field 344.—Starting at the lower end next the main road in field 344, now in Clover and seed, the soil proved to be an unctuous and heavy loam, with a subsoil of pervious sandy clay, which can readily be improved by drainage; a grand position for Pear-trees on Quince stock, Black Currants and Strawberries of the later sorts, and the British Queen rose.

Field 343—in Wheat.—This field has a slight slope to the west, and is a trifle lighter in texture than 344; a grand spot for Roses.

Field 343—in Grass.—This lies at the lowest point; and although the drains and ditches had been neglected, I found no part saturated with water, and the opening of the ditches and draining will make this a valuable plot for vegetable crops as it contains more humus than the previous plots.

Field 342—in Pasture.—Very similar to 323, and only the neglect to keep the drains open causes it to be damp, as the subsoil is not impervious, and there are two outfalls for drainage with a fall of 2 feet to provide ample outlet for any winter rains. This would make a fine Pinetum.

Field 324.—Is a fine pasture field falling from east to west. The soil is a very rich heavy loam eminently suitable for fruit of all kinds, as the surface soil is deep and the subsoil is lighter than in other parts. I consider it the best field on the farm.

Field 310—in Hops.—Here the necessary culture for the crop has rendered the land in good heart and condition, and I

The present Oast-house.—If Hops are not continued it will make a capital fruit-store on the top floor, and Potatoes and roots can be kept below.

General Remarks.—I consider the site an ideal position for an experimental garden for horticultural purposes, as there are several features which can be made the most of. For example, the road sides can be utilised as an arboretum (forest trees, &c.). The fields 323 or 342 for a Pinetum; other spots suggest a collection of flowering shrubs, a Salicetum (or Willow-bed) for the purposes of correcting the nomenclature of this useful family, and for selecting the best Osiers for basket work. Trials of suitable fancy hedge shrubs, trials of artificial manures, &c.

Water.—The water-supply rising at a fair altitude, can be utilised by gravitation for greenhouses, vineries, &c., ornamental ponds for aquatics, tanks for the smaller water-plants, and water for all purposes can be stored where desired.

a separate report, but there will be found much upon which, after discussion and a frank interchange of opinion, we were agreed.

The site is a southern slope of a continuous range of hills bearing to the east upon the lower greensand, ascending half up the hill, and thus sheltered thoroughly from the north and east by the higher portion of the slope. The meadows referred to further on lie at the foot of this slope, and are consequently, as regards 323 and 342 of the Ordnance Survey Map, the recipients of the storm-water of the somewhat basin-like shape of the higher slopes; this accounts for a fact which we gathered from enquiry of the neighbouring cottagers, that a part of these two fields is subject to an occasional flooding after sudden storms, but which quickly passes away (these fields having a thoroughly good outlet now needing clearing), but which I consider as a valuable element in the estate for water supply and other purposes.



FIG. 89.—MAY-FLOWERING DARWIN BREEDER TULIPS, FORCED IN MESSRS. KRELAGE'S NURSERY, HAARLEM.

(Part of a group at the Haarlem Bulb Show, March 16, 1900.)

should fix on this spot for an experimental orchard or plantation. The top of this position is even better than the lower part.

Field 311 (a)—in Corn.—The upper portion is on the bed rock at 2 feet, and is of a lighter description than any yet noticed; eminently suitable for bulbs and root vegetables as Beet, Carrots, &c., also for Nut-bushes and Plums, or Kidney Potatoes.

Field 311 (b).—Halfway down, this land becomes heavier, and is then fine retentive loam, suitable for Pea and Bean trials, Apple culture, or Main Crop Potatoes and Strawberries.

Field 311 (c).—At the base of this large field, and towards the west it becomes heavier, and requires to be ameliorated by drainage, although fine land for cereal crops in its present state. There is a 2-ft. fall into a ditch on the other side of the hedge, ample for all drainage purposes.

Field 311 is not well farmed, and will require a heavy coating of manure to bring it into full use.

There is an ample choice for soil for all the families of herbaceous plants. Sandstone rock at hand suitable for rockeries, alpine-gardens, &c., and positions for every kind of hardy fruits and vegetables. From the condition of the old trees in the garden (uncared for), it is evident that fruit will succeed in the district, and younger trees planted near were evidently in congenial soil.

Drainage.—A complete system of drainage will be required, and the trend of the land favours this operation, as it falls naturally to the outlet. *Georgy Bunyard, Maidstone.*

"As requested, I inspected on Wednesday, April 18, the farm-land at Limsfield, by Oxted, offered to the Society.

My instructions, I understand, were to report upon the lay of the land, its quality, condition, and suitability for the culture of fruits, vegetables, &c.; and in my case more especially of flowers, Roses, herbaceous plants, and similar plants.

Messrs. Bunyard, Pongart, and Beckett, are each sending

The estate is entered through two fields, with long frontage to the main road, across the extensive adjoining commons from Oxted Station.

Field 344, in turf, of many years standing (old pasture), falling slightly to north and foot of hill.

Field 343, the adjoining field—Arable, under Wheat, frontage to road, same fall, fairly clean and fair crop.

Field 328, adjoining field to north of 343, with entry over roadway at the east side of 343, is old pasture, with a covered drain or culvert to take the storm-water from the upper sloping basin to the outfall ditch, which is by the east side of the entry road on 343.

Field 342, old pasture, with a slight fall to the ditch referred to on its western side.

These four fields are all more or less of one level, the flat land at the foot of the three sharp sloping fields lying above them. The soil is a heavy clayey loam, of good fertility, of about 1 foot in depth, the subsoil being the sandy clay or

moist sand of this formation. I should say this portion of the estate would grow Roses freely; herbaceous plants, evergreens, and Pears and Apples amongst the larger fruits; Strawberries and bush fruit amongst the smaller fruits; and with regard to vegetables, it would be good Pea, Bean, and Broccoli soil. It requires draining, and had I to deal with it for practical nursery or market-garden work, I should along its centre and in the lowest part of the two last-named grass fields, make a wide ditch or small moat, with a controllable outfall into the brook near the road, and which I understand flows into the Eden, and so I should secure a water storage supply which could be pumped to the highest level of the estate, and so lay the whole of the experimental garden under water control. The brook which after turning a ram for the owners of the higher land flows through the estate, might, I think, be used to lift this stored water to the highest point alluded to. Such a basin would be invaluable in a trial garden for the growth of the newer Water-Lilies, and other water-plants; altogether I conclude this water supply to be of value for a garden applicable to experimental purposes. The three additional fields are of a totally different character. They form the sloping sides of the land basin of which the lower fields are the bottom.

Field 324.—Old pasture in good condition facing south-west, rising quickly some 60 feet, soil slightly lighter than the preceding fields; subsoil rather charged with the water from the upper greensand. Land requires, as do also the adjoining sloping fields, good subsoil drainage; fine Strawberry and fruit land.

Field 310.—Arable, under hops which are breaking strongly. The brook in question falls rapidly along its eastern side; slopes to the east, rising rapidly to a level of about 400 feet. The soil is somewhat lighter, but of greater depth, and the subsoil is decidedly more sandy. I should consider it, so far as regards its suitability for fruit-culture, as good Plum, dessert Apple, and choice Pear land. At the top of the field, lying as it does close to the stone Cherry-land, I think Tea Roses, shrubs, and Conifers, requiring lighter soil, and hardy plants with like requirements, should do well.

Field 311.—Upper part of this field light sandy loam, resting 1 foot above stone used for building. Arable, with a fall of some 200 feet to the meadows below. A fertile, lighter soil, with its different quality, invaluable in such a garden. Half way down the slope the soil changes, and gradually approaches that of the lower level; it is here some what moist from the flow of water from the rock, but needs only drainage. This difference of soil again affords from its variety opportunities for trial of fruits in the different lighter or heavier soils. Roses would do well here, Conifers on the rock underlying other parts of the field; and it is either here or in the exposed rock hillside by the farm-house that alpine plants could be tried.

Conclusively, I look on the soil as good, sound, heavy soil, the large proportion of old turf is most valuable, the sheltered positions are beneficial, its water supply valuable and available, and its difference of altitude, slopes, and variations of soil are essential for the purposes for which the garden as an experimental garden is required. The whole estate from its altitude is, I should imagine, above the dangers of spring frosts, but I cannot be positive as to this. *George Paul, Cheshunt.*

"According to instructions I attended on April 18 at Chartland Farm, Limpfield, Surrey, with a view of reporting as to its adaptability for a fruit, vegetable, and flower-garden. I made a careful inspection with the following result:—

The farm consists of about fifty acres, and is situated in the lower and middle portion of a sharp-rising valley, mostly facing the south, and well protected from the N. and E.

It is divided into eight enclosures, which I report on separately, using the numbers on Ordnance Survey.

No. 344, Wheat stubble, a comparatively flat field, has about 10 inches of heavy loam on slightly sandy clay.

No. 343, young Wheat, very slight slope to S. and S.W., soil the same as in 344. I consider these two fields well adapted for the growth of most vegetables, fruit, and many flowers.

No. 323, grass, soil a medium loam on sandy clay; this field shows signs of wet in a portion running down the centre.

No. 342, grass, soil same as 323; this field is also very wet through the centre part.

These two fields are the middle of the lower part of the valley, and form the natural outlet for the water from the whole; the drains appear to have been sadly neglected, in fact, some have almost disappeared. I am of opinion that with good open ditches, and the land well drained and cultivated, these fields would make excellent garden ground.

No. 324, grass field; sharp slope facing south-west, soil 12-inch good loam on stiffer loam over sandy clay. This is a capital piece of land.

No. 310, Hops, slope facing south and east; soil 12 to 15 inches good medium loam.

No. 311, large arable field: good slope to the south; soil upper part (about half) 12-inch light sandy-loam on rock, lower part little stiffer on sandy clay; about 2 acres of bottom corner of this field show signs of wet, could be easily drained in conjunction with 323.

These two fields, 310 and 311, would do well for fruit, vegetables, and flower growing.

Generally, the land has been badly farmed, the drainage utterly neglected. I am of opinion that, with proper attention to drainage (the final outlet for which appears to be ample), and good cultivation, the land would make a good all-round garden. *W. Porpart, Twickenham.*

THE WEEK'S WORK.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener to F. A. BEVAN, Esq., Trent Park, New Barnet.

The planting of Strawberries.—Those runners which were set out last autumn in nursery lines, may, early this month, be transferred to the quarters. The season is rather far advanced for moving these plants, but as they are not required to furnish fruit this year, there is ample time for them to become thoroughly established. Assuming that the land has been deeply dug in preparation for them, the first thing to do is to smash all clods, make the surface firm by trampling it evenly, to level it with the spade and rake, and remove large stones, &c.; and the plants being lifted with a mass of roots and soil, should be planted in good sized holes, making the soil firm round about them. Water may be afforded if the soil is dryish, and a mulch of some description afforded to keep the soil moist without the necessity of frequently applying water. If space be limited, the land may be intercropped this summer with, say Lettuces, Endive, or similar dwarf vegetation. Let all flower scapes be removed before lifting the plant. This last remark applies also to the Strawberry plants set out last autumn for the purpose of furnishing runners for potting up for forcing, and any plants that are not showing for bloom should be destroyed, and thus avoid running the risk of potting blind plants.

Early-forced Strawberry plants.—If such are retained they may be planted forthwith if sufficient ground is at liberty, which is better practice than to keep them in their pots, with the great risk of neglecting to afford water when it is needed. The planting should be performed with a spade, and the balls thoroughly moistened before planting. The varieties Royal Sovereign and Vicomtesse Héricart du Thury, will often afford a moderate quantity of fruit in the autumn months, if the precaution be taken to plant early, and afford suitable cultivation afterwards.

Early Strawberry Borders.—The present season being a backward one, the crop must of necessity be late also, however much may be done to secure some early fruits, by placing cold frames over one or two year old plants of the varieties named, or other early fruiters. The chief points to be observed are to afford air freely on bright mornings, and particularly when the plants are in flower, and when the fruit is set to afford water at the roots when the soil is getting dry; to close the frames at 3.30 P.M., and to cover the lights with mats if the night be cold. Some gardeners lift the plants and place them in a heated pit, but unless the fruit is wanted for any particular purpose, such practice is not to be commended.

FRUITS UNDER GLASS.

By J. ROBERTS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Cucumbers.—The early plants being at this date in full bearing, will stand in need of liberal applications of liquid-manure, and an occasional top-dressing of turfy-loam and horse-droppings, in order to maintain them in vigour and productivity. Let all laterals be stopped at the first or second leaf beyond a Cucumber, and removed where there is no risk of the trellis being overcrowded with foliage, likewise cut off all of the useless old foliage. On sunny days syringe the plants morning and afternoon, in order to check the spread of red-spider, maintaining a steady degree of humidity in the air by wetting the floors, walls, &c., several times daily. A high temperature is necessary for the rapid development of the fruit, without which it is likely to be lacking in crispness. A night temperature of 75°, and 85° by day, with 80° at the roots, will suffice. Where stable-dung and tree-leaves are employed in brick-pits and garden-frames, much attention is necessary in affording linings to maintain the proper bottom and top heat. Such structures and appliances should be closed early in the afternoon, and covered at night; a temperature of 65° at night, and 75° by day being maintained.

Figs.—Having a good stock of the variety Negro Largo in pots, the gardener will find no difficulty

in obtaining a late crop of fruit after the border trees have ripened their second crop. Assuming that the young trees are healthy, with three or four buds, let them be pruned back to one or two good buds at the base of each shoot, and encourage a strong break by syringing the plants and maintaining much atmospheric moisture in the house. After growth has begun the shoots should be thinned out, so as to form an open-headed bush, staking and tying them out as growth proceeds, and stopping them at the eighth leaf. By the time this stage of growth is reached the plants should have become moderately pot-bound, with a fruit showing in the axil of every leaf, at about which time the plants should be accustomed by degrees to cold-frame treatment for the summer, syringing them every afternoon, and not allowing them to suffer from lack of water at the root. About the middle of the month of September a house should be got ready to receive the plants. At this time every plant should be carrying from four to six dozen fruits each, with the foliage as fresh as at midsummer; and to maintain this freshness of foliage until the crop is ripe must now be the aim of the gardener. A bottom-heat of 65° free from rankness, and a top-heat of 70°, must be afforded, and a house free from drip, as dampness during the moist days of late autumn is a great evil. A succession batch of plants may be treated in a similar manner a month hence, and these will supply good fruit until we are well into the month of December. This set of plants may now be placed under a north wall so as to keep them as quiet as possible before they are pruned. Pot-trees from which a crop of fruit has been taken may be afforded by degrees more air, with a view to the thorough ripening of the wood at an early part of the season. Fruits left on these trees to form the second crop should be severely thinned, only the earliest being left, otherwise the crop will scarcely be cleared before the season for repotting the trees arrives. Every effort should be made to keep red spider in check. Apply clear liquid-manure to the roots occasionally, expose the trees to the hottest sunshine, and gradually harden them off by the time the second crop is gathered in order to enable them to stand out of doors during the months of July and August. Regulate the growths, removing any very vigorous shoots which are likely to interfere with the proper balance of the head. Allow all shoots of middle-size to go unstopped after this date, so as to secure a terminal bud.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WISEMAN, Bart., Clare Lawn, East Sheen, S.W.

Celogyne cristata, when properly cultivated affords a return in beautiful flowers, greater probably than does any other Orchid; and at the same time the plants increase in size and strength. When the rhizomes get beyond the confines of the pan, the roots having nothing to feed upon, produce bulbs too weak to produce flowers. Now is the time to remedy such a condition, either by dividing the plants, or removing them to larger receptacles. If the former method be preferred, turn out the plants, shake away the old potting-material, and carefully detach the rhizomes with three or four of their leading pseudo-bulbs, and as many of the old living roots as possible. The remaining old stock may possibly produce growths from dormant buds. Prepare a compost of two parts fibrous-loam, one of peat, and one of chopped sphagnum-moss, to which add sufficient small crocks and sand as will keep the whole porous. Select pans of moderate depth, and fill them rather more than one-half with crocks, so raised in the centre that when the potting is completed, there will be a conical mound above the pan. Over the drainage place a layer of rough sphagnum-moss, and then proceed to reconstruct the specimen by planting the roots and older ends of the rhizomes in the soil, so disposing them that the new growth will proceed towards the centre of the pan; the soil, consisting only of a thin layer, may be pressed firmly, but not so hard that water will not percolate through it quickly. If the rhizomes cannot be made secure with soil alone, copper-wire pegs may be used, or preferably, split Bamboo-canes bent to form pegs. Afford plenty of water after re-potting, and syringe the plants each morning and afternoon. These syringings will provide sufficient water until new roots have been made. *Celogyne cristata* thrives at the cooler end of the Cattleya-house,

or other structure where there are similar atmospheric conditions. The species grows naturally at varying altitudes, and if we only knew from whence our particular plants came, those from the higher elevations could be grown in a cool-house, except that the shade there necessary for other plants would not suit them.

Celogyne cristata alba has a greater length of rhizome, and requires a larger receptacle. Oftentimes, however, the rhizomes can be bent back and pegged on the soil. This variety, too, requires less loam and more peat than I have advised for the type species.

Celogyne Massangeana will succeed in pans or baskets suspended in the Cattleya-house. It produces roots at various seasons, and any necessary disturbance of the plants should be done when there are signs of these. The plants require plenty of drainage, and a compost of equal parts of fibrous-loam, peat, and sphagnum-moss, should be employed. Except when rooting freely, a moderate supply of water suffices.

Celogyne tomentosa differs little from *C. Massangeana*, but the flower-spikes, like those of *C. cristata*, are produced separately from the growth, and it requires an East Indian temperature. Re-basking or resurfacing should take place when renewed root-action is about to occur.

Celogyne Dayana is also a heat-loving subject; it is now flowering, and will need attention immediately following this stage. Well-drained pans or baskets, and a compost of one part fibrous-loam, two parts peat, and one of sphagnum-moss, with some finely-broken crocks, should be used for this plant. Suspend the plant where it can be reached by the syringe, so that red-spider may not infest it. A copious supply of water is necessary when the plants are rooting freely.

Celogyne asperata is a very strong-growing plant and a shy flowerer. Unseasonable growth in many instances may account for this last condition. The species is now flowering from the developing growths, and will need to be afforded new material before root-action has commenced. Rather deep, perforated pans, three-parts filled with drainage-material, should be used when giving this species a shift; and the same compost as that advised for the previously named species. Stage the plants in a light position in the stove, apply water freely when root-action is vigorous, but at other times only afford sufficient to keep the material moist. No water should be permitted to lodge in the folded leaves of the developing growths.

THE FLOWER GARDEN.

By J. BURNOW, Gardener to the Earl of Ilchester, Abbotbury Castle, Dorset.

The Preparation of the Flower-beds—The chief item in work of the flower gardener at the present date consists in getting the beds and borders in readiness for the reception of the hardier kinds of plants used for edgings, or ground-work in carpet gardening. Those dwarf plants which were divided and replanted in the reserve garden in the autumn, may now be planted in their summer quarters. It is yet too early to plant any but the hardier species, the weather, particularly at night being for the time of year unfavourable for all other kinds of bedding plants. All arrears of work should be brought abreast of the season, especially the preparation of the soil, so as to enable the young plants when put out to start away with vigour, and save time in affording water during the heat of summer. Keep the Dutch-hoe constantly at work in destroying weeds and aerating the soil; and strew soot sparingly over the beds previously to hoeing the soil, as a deterrent to slugs and snails.

Sub-tropical Plants.—The following plants may now be placed in positions favourable to development, viz., *Aralia mandchurica*, *Ailanthus glandulosus*, *Agave americana*, and its variegated form. All of these, if grown in tubs, are suitable for situations in the garden and on terraces. Others are *Catalpa syriensis*, and *C. s. aurea*, *C. bignonioides*, *Arundo Donax*, and *A. d. variegata*, *Paulownia imperialis*, *Robinia pseudo-acacia elegans*, *Liriodendron tulipifera aureo-maculata*, *Magnolia hypoleuca*, and *M. macrophylla*. The above named plants, with the exclusion of the last four, should for convenience of storing and for obtaining large leaves, be cut back to a few inches above the ground when dug up in the autumn, and be potted care-

fully in rich sandy loam, storing them in a greenhouse. Treated in this manner, with ordinary care in affording water during the present month, they make foliage of a large size which is very effective in the sub-tropical garden. Young plants 2 to 3 feet high, obtainable from the nurseries, make good specimens for the lawn, or for grouping together in beds. Groups of such plants may be surrounded with a line of Fuchsias, or of dwarf Dahlias, Cannas, &c. It is important that a sheltered part of the flower-garden, open to the sun, be selected for the position of beds of large-leaved sub-tropical plants, otherwise the wind plays havoc with them.

Bedding-plants.—Tender half-hardy plants, such as *Celosia pyramidalis*, should be potted on, and late-struck Lobelias, Verbenas, Mesembryanthemum cordifolium, Petunias, &c., should be now potted or put into boxes, and afforded genial conditions, previously to hardening them off. Earlier established plants, now standing in cold frames, should be afforded the fullest ventilation in sunny weather, merely closing the frame an hour before sunset. Mats should be kept in use for covering the frames at night for the present.

PLANTS UNDER GLASS.

By T. EDWARDS, Foreman, Royal Plant Gardens, Frogmore.

The Stove.—Most of the plants in the stove-house now being in full growth, those which have filled their pots with roots will be benefited by an occasional application of some sort of manure in a diluted state. The repotting of *Justicias*, *Scutellaria Mociniana*, *Acalypha Sanderiana*, *Clerodendron fallax*, *Gardenias*, *Eranthemums*, &c., before they become pot-bound must receive attention; and a soil to suit these plants will consist of equal parts turfy loam and peat, with sufficient silver-sand as will allow of the free passage of water when firmly compressed in the pots. Many of these species will grow to a useful size in 6-inch pots. *Dieffenbachias*, *Dracenas*, *Codiasums*, *Acalypha musaica*, &c., *Ficus elastica*, *Aralias* (*Panax*), &c., which, having been grown from cuttings or eyes, should be potted-off as soon as they are rooted, growing the plants on rapidly, and gradually exposing them to a certain amount of direct sunlight. These plants should be allowed ample space for development. Plants intended for the decoration of the dinner-table, are usually better suited for that purpose if they are grown with a single stem without any stopping, and the stock of them should consist of pairs. In order to encourage growth and keep them clean, apply clear water with a syringe in the early morning and at closing time, about 4 P.M. A night warmth of 75° may now be maintained. *Nepenthes* should be immersed in tepid rain-water two or three times a week, and be syringed several times daily in sunny weather. Those plants which are growing strongly, and have stems over a foot high, should be stopped in order to produce good pitchers, and it is advisable (if growing them with other plants) to group them in a shady part of the house, or to have light shading tacked on the roof, in addition to the usual roller blinds. Always move *Nepenthes* to another house when fumigation or vaporising is to be done, these plants being easily injured by the noxious fumes.

Gesneras and Negelias.—When the foliage begins to decay, these plants should be rested for five or six weeks by turning the pots on their sides under the stages.

Solanums, Bouvardias, &c., which were cut over, and have now started to grow anew, may be shaken out and repotted in smaller pots, so as to become established for planting out at the end of the present month.

Chrysanthemums.—The repotting of these plants in 32's must now be finished, or they will not be in a fit state for the final potting at end of the month.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain BOLFORD, Westonbirt, Tetbury, Gloucestershire.

Preparation of Vacant Plots.—Winter Greens should now be cleared off, and the soil dug previously to planting Celery. For the earlier crops, trenches should be made 1½ foot wide and 1 foot deep, leaving a space of not less than 3 feet between

them, and filling the trenches to within 4 inches of the top with rich manure in a decayed state, which should be covered with a 3-inch layer of soil, either dug up from the bottom of the trenches or shaved from the sides. The distance between the trenches in which late crops are grown should be about 4 feet, and width 1½ to 2 feet. The spaces between the trenches may be occupied by such catch crops as Lettuce, Endive, Spinach, &c.

Beetroot.—A sowing for the main crop should be made in the first week in this month, the ground having been trenched and ridged in the winter. The ridges should be levelled a few days before the seed is sown. Beetroot likes a well-exposed position, and a fairly rich soil; but in most gardens a plot which has been manured for a previous crop is the best for producing symmetrically-shaped, middle-sized roots. The roots always come forked if the land is recently manured, and if the sowing has been made earlier than the date given. Good Beetroots may be obtained from ground which has carried Celery. In wet and heavy land, road-scrappings and wood-ashes may be incorporated with the staple with decided advantage to the crop. Beet seed should be sown to the number of five to seven seeds in a patch, in drills, which should be drawn 18 inches apart and 2 inches deep. The plants at the final thinning may be left at 10 inches apart. The drills should be moistened, and the seeds steeped in water a few hours before insertion if the land be dry at the time of sowing. One of the best Beets grown is Cheltenham Green-top, it being excellent in flavour and colour.

French Beans.—These may be obtained a few weeks earlier outdoors if seeds be put now in 60's or boxes (the former being preferable), and placed in the greenhouse. The plants will be ready to plant out on a warm border towards the end of the month.

Scarlet Runners may be raised in like manner, but it is more usual to sow the seed out of doors about May 12.

THE APIARY.

By EXPERT.

Hive Treatment, Feeding, &c.—The recent weather has been most annoying from a bee-keeper's point of view, cold storms and rough winds preventing anything being done so far as the bees themselves are concerned; but one thing must not be overlooked, and that is, to place candy-cake, or damaged sections in the hives, in order to keep the queen breeding. Any old surplus honey, placed in a warm corner, far away from the hives, for the bees to clear out, a few shavings being placed in the dish to prevent the bees from drowning, and a small quantity of Pea-flour mixed with the shavings, for the bees to get pollen from, will be very helpful, as in many districts there is not a single Dandelion out, and no signs of any. All crates should be got ready immediately, so that they can be placed in position as soon as we get better weather, and the first blossoms are out. This year, I fear, will be a very disastrous one to bee-keepers, particularly where the bees have not been well looked after and fed. Swarms this month will be very scarce indeed, and I fear that the same will be the case in May, unless a great change for the better takes place. Bee-keepers should look for robbing; as soon as any undue movement is observed, it should be stopped forthwith, or weak stocks will soon be bare of honey. Remove the weak stock as far as possible away from the robber bees, and if again attacked, strongly close it for a short time. By this date every bee-keeper should have made up his mind which hives to work for sections and for run honey, it being useless to work for sections if you cannot sell them, and the same applies to run honey; and if run honey is required, use shallow frames and 15½-inch bar only, it is very awkward using the 17-inch ones.

Breeding.—Hives containing ten frames, and filled with honey, will not be very plentiful just now; but a good many may require a little attention on the first fine day, removing a frame from the centre or brood chamber, substituting a new one for it, with a full sheet of foundation to enable the bees to breed; or, better still, a frame drawn out, if clean and healthy. A good deal of time is lost in breeding, by the queen having no room to breed; a frame of honey should also be uncapped, and replaced in the hive.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, MAY 5. Royal Horticultural Society's Committee.
Royal Gardeners' Orphan Fund
(Annual Dinner at Cafe Monico).
Paris Exhibition (temporary show).

SALES.

WEDNESDAY, MAY 9.—Cacti, Gladioli, Begonias, Lilies, Greenhouse Plants, &c., at Protheroe & Morris' Rooms.—Decorative Palms, Dwarfed Trees from Japan, also Lilies in variety, Carnations, Cannas, &c., at Stevens' Rooms, King Street, W.C.

THURSDAY, MAY 10.—Clearance Sale of Bedding Plants, &c., at the Lion Nurseries, Bexley Heath, by order of Mr. Flather, by Protheroe and Morris, at 1 o'clock.

FRIDAY, MAY 11.—Imported and Established Orchids at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chislewick.—58°.

ACTUAL TEMPERATURES:—

LONDON.—May 2 (6 P.M.): Max. 67°; Min. 50°.

May 3.—Showery.

PROVINCES.—May 2 (6 P.M.): Max. 59°, Home counties; Min., 50°, N.W. counties.

The Hatch Act, passed by the United States Congress in 1887, provided for the establishment and maintenance of an experiment-station in each of the States, but this was only an outcome of the success of existing stations. Among the latter, and indeed the second one in point of age, was that at Raleigh, North Carolina, and it may well serve as an example of its class.

Before considering the work which a report just published shows to be done at the present time in this particular case, let us see what the law expects to be carried on at an agricultural experiment-station. Section 2 of the Act already mentioned says:—

"That it shall be the object and duty of such experiment-stations to conduct original researches, or verify experiments, on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the analysis of soils and water; the chemical composition of manures, natural and artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage-plants; the composition and digestibility of different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions of the respective States or territories."

Furthermore, bulletins or reports of progress were ordered to be published at least once in three months, and to be sent to all the newspapers in the State, as well as to as many cul-

turists as funds allow. Secretary WILSON says of the stations (which are usually attached to colleges) that, "College duties should not be allowed to encroach upon the time set apart for original investigation, and the compilation of old information should always be made secondary to the acquirement of new knowledge." There is a difference between educating the grower of plants or the raiser of animals in the ordinary way, and teaching him new truths by experiments. It is a pity that this was not recognised in so many words in our own Technical Instruction Act.

The North Carolina Station began with the services of one investigator and the use of part of a laboratory, ten years before the Hon. W. H. HATCH, of Missouri, secured the passing of his Act. Now the staff consists of fifteen persons, and the work of the Fertiliser Control division occupies seven more.

The analysis of fertilisers was the only work at first attempted; culturists who were thus protected against unscrupulous manufacturers by the help of science sought further aid, sometimes to be readily given in the shape of information, at other times needing to be found by making special experiments on the land. It is claimed that "by the joint efforts of 'the man with the hoe,' the man with the balance, and the man with the microscope," much of value has been accomplished.

In the report it will be found that bulletins are included which deal with the adulteration of foods and not with the production of them, the vegetable additions (and, indeed, a mineral one) made to flour, come in for attention; the substances that occur in bread, owing to the use of "baking-powders" are dealt with in another pamphlet, as well as preservatives in canned foods. It may be worth while to point out that while no added preservatives were found in tinned meats, one hundred per cent. of the canned fruits, and sixty per cent. of canned vegetables, contained salicylic acid; while in eighteen per cent. of the second, and ten of the third was sulphurous acid shown to be present also. Dr. VILEY's statement is quoted as being the fairest possible, both to "canner and consumer," and it states:—"First, that the use of added preservatives is upon the whole objectionable; second, that their absolute inhibition is not warranted by the facts that have come to our knowledge, but in all cases their presence should be marked on the label of the can."

This subject is interesting in connection with the recent legislation and taking of evidence upon food preservatives in this country.

Some eighty pages are devoted to work on the experimental farm of the North Carolina State Horticultural Society at Southern Pines, in which the staff of the station gave their assistance. The main object was to determine by actual experiments the best quantities, relative proportions, and the various fertilising substances to be used (farmyard manure being excepted as not available in sufficient quantity), in order to produce the largest crops at the least expense in the case of vegetables and fruit. Methods of resisting and treating attacks of fungoid diseases and insects were simultaneously studied, and the adaptability of special varieties to the particular climate determined.

The amounts of the different fertilisers required to furnish the normal rations of potash, nitrogen and phosphoric acid, were calculated for each plant in the case of Peaches, Pears, Plums, and Chestnuts (and in some

cases of Grapes); and for each row of plants in the case of Grapes, Blackberries, Strawberries, and Raspberries. The quantities were carefully weighed, and taken to the field in paper bags, and each plant received its exact share, the fertilisers being evenly distributed by hand by experienced men from the chemical division of the station. In most cases every plant was examined individually three times in the year, and a careful record made of its height, the growth of its shoots, fungoid or insect damages, and general condition. Photographs were also taken as a means of further record.

The comparison of the results so far as they have gone is made on the "weight of prunings" as one factor, and the observed "vigour" as another. An increase in the amount of phosphoric acid above the calculated ration was justified, and the value of the different forms of potash-manure was found to be "sulphate" first; muriate, second; double manure-salt, third; carbonate of potash-magnesia, fourth; kainit, fifth. The value of the application of lime was, in normal cases, always clearly evident; this substance making food available by the rapid decomposition of organic matter existing in the soil.

In the case of sweet Potato, to turn to the vegetable series, although the analysis of the soil showed appreciable supplies of food within the reach of the root systems, comparatively minute quantities of fertiliser applied seemed to work wonders. In Irish Potatoes, the first noticeable point in the results was the great gain obtained by using fertilisers; we quote the extreme cases. On a plot of the area of one-twentieth of an acre with no added manure, there were grown of first grade tubers 6.7 lb.; of second, 27.0 lb.; of third, 52.7 lb.; 86.4 in all. When three times the normal ration of potash, phosphorus, and nitrogen, was given in addition to lime and green manure, the yield on a similar plot was first grade, 268.5 lb.; second grade, 66.2 lb.; third grade, 22.7 lb., being 357.4 lb. in all, and in this case, owing probably to the heavy application of manure, two hundred and fifty-five plants did not grow out of six hundred and eighty.

Digestion experiments, and the question of obtaining pure drinking water, we will pass over, to take notice of some of the "hints" of the staff-horticulturist "as to the more profitable use of the soil and crops of the State." This writer, though believing that commercial fertilisers are efficient aids to the restoration of soils, points out that they may really be a source of ruin when applied irrespective of the condition of the soil. The point should not be lost sight of that by adopting a system that tends to conserve and retain fertility, there is no need for the application of artificial manure to every crop grown—an idea which has sprung up as a result of station experiments.

If fertilisers be used, they should not be bought ready made, on the "patent medicine plan." The materials should be obtained and mixed at home, in the proportions needed. A very well-written paragraph is entitled "How the Pea gives us nitrogen," and also shows the value of humus in the soil from a mechanical point of view.

Of interest is the remark that a "single load of manure from highly-fed cattle is worth many loads of that from cattle that have had a poorly balanced ration, or have had just enough of something to keep them alive through the winter." Again, the pungent odour of a heated manure-heap is nitrogen getting away in the



FIG. 90.—BEGONIA "GLOIRE DE LORRAINE," FLOWERING IN THE GARDENS AT HIGHWOOD, ROEHAMPTON, THE RESIDENCE OF E. H. BROWN, ESQ.

form of ammonium carbonate, and this nitrogen cost money, and should be preserved by putting the manure where plants can take advantage of it.

In the same paper the question of "trucking" by farmers is dealt with. This is the growing of inferior crops which glut the market and render worthless those of the real gar-

deners. This is naturally condemned, but it is suggested that nearly every farmer could and should grow such things as are in demand in his local market, and which can be used through the year as a source of family cash.

A solid contribution to botanical knowledge is the list of flowering plants of North Carolina, bringing up the number of species from 1920 to

2685, which was compiled by the assistant-botanist.

A suggestion of a very practical nature is made under the heading of "Poultry Notes," and is, that eggs should be sold by weight. It is asked, "on what other article of food would people be content to pay the same price for what may vary over 50 per cent. in value?"

It also seems proved beyond a doubt that the flavour of the food given to the fowls may reappear in their eggs, at least in the case of Onions, which were used in the test experiment. Doubtless, at times, our readers may have been tempted to exclaim at the breakfast-table that "the fowl that laid this egg must have had fish for dinner," and very probably their surmise was right.

ROYAL HORTICULTURAL SOCIETY.—The next meeting will be held on Tuesday, May 8, in the Drill Hall, James Street, Westminster, S.W. At 3 o'clock, P.M., a lecture, "Is there any Natural Limit to the Improvement of Cultivated Plants?" will be given by Mr. W. BATESON, M.A., F.R.S.

THE TEMPLE SHOW, 1900.—For the thirteenth year in succession the Royal Horticultural Society will hold its great annual flower show in the Inner Temple Gardens on May 23, 24, and 25. Every year the desire of horticulturists to exhibit at this show increases, and the officials of the Society have a very anxious task in endeavouring to do justice to those who regularly support the fortnightly shows of the Society held at the Drill Hall, and yet at the same time to encourage others also to come forward. The space is absolutely limited by order of the Temple authorities; no more, or larger, tents may be erected. Hence every new exhibitor whose entry is accepted means curtailment of the space allotted to previous supporters. The following details have been officially supplied us, and should be carefully noted by exhibitors and members of committees:—A catalogue of the show is given gratis to every visitor, and will contain a notice of new and rare plants entered on or before May 15; it will also contain a programme of the music to be performed each day by the band of Her Majesty's Royal Horse Guards (Blues). The judges will meet at the secretary's tent at 10.30 A.M. on May 23, at which hour punctually the tents will be cleared of all exhibitors and their assistants. The Fruit, Floral, and Orchid Committees will assemble at the secretary's tent at 11 A.M. punctually, and the show will be opened at 12.30. All plants for Certificate must be entered on or before Friday, May 18, addressed, The Secretary, R.H.S., 117, Victoria Street, S.W. They cannot be entered under any circumstances on the day of the show. Schedules for this show can now be obtained from the secretary, but a stamp must be enclosed for return.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The sixty-first anniversary festival dinner in aid of the funds will take place at the Hôtel Métropole, on Friday, March 18, 1900, under the presidency of his Grace the Duke of PORTLAND, K.G., P.C., G.C.V.O., who will be supported by the Dean of ROCHESTER, Viscount POWERSCOURT, the Right Hon. A. H. SMITH-BARRY, M.P., Sir WALTER SMYTHE, Bart., and other influential gentlemen.

SCHEDULES TO HAND of prospective flower-shows include the following:—

THE ULSTER HORTICULTURAL SOCIETY will hold its annual show of Chrysanthemums, fruits, and vegetables at Belfast on November 13 and 14. The exhibitions of this Society always reach a very high standard of quality. The schedule is an exhaustive one, and the money prizes offered are of liberal value. Most of the classes are open to all Ireland, and in one of them, English, Scotch, and Welsh growers may also compete if they wish. This important class is one for twenty vases of Japanese blooms in twenty varieties, three blooms to be shown of each variety. The prizes offered are £20, £12, £7, and £5. The name and address of the secretary is as follows:—J. MACBRIDE, Victoria Square, Belfast.

THE CROYDON HORTICULTURAL SOCIETY will hold its thirty-third summer show in the grounds of Brickwood House, near to Addiscombe Road station, on July 4. The schedule of about fifty

classes includes twenty-four that are exclusively for Rose blooms. Roses are always a feature at the Croydon shows. The secretary is Mr. A. C. ROFFEY, St. Andrew's Villa, 55, Church Road, Croydon.

NOTTINGHAMSHIRE HORTICULTURAL & BOTANICAL SOCIETY.—This Society will hold its annual exhibition in Colwick Park on June 6 and 7, in conjunction with that of the Notts Agricultural Society. By far the most important class is the first one: it is for a group of plants to be staged upon a space not to exceed 200 superficial feet, and the prizes offered are 15 guineas and a Silver Cup value 10 guineas, £15, £10, and £5. There are fifty classes. The secretary is Mr. C. J. MEE, 29, Long Row, Nottingham.

SALE OF BOTANICAL BOOKS.—The valuable library of the late Mr. J. T. BARBER, of Oakfield, Aston-on-Clun, Salop, sold at Messrs. SOTHERBY's last week, included an unusually fine series of botanical works, many of which are very scarce. The following were the principal lots, with the prices realized:—

Andrews, H., Botanists' Repository, 10 vols., 1797-1815	£10 5 0
Bateman, J., Orchidaceae of Mexico and Guatemala, 1843	11 0 0
Bauer, F., Orchidaceous Plants, Preface by Lindley, 1830-38	4 15 0
Baxter, W., British Phanogamous Botany, 1834-43	2 18 0
Blume, C. L., Rumphia, sine Commentationibus Botanicae, 1845-48	12 0 0
Bury, Mrs. Ed., Hexandrian Plants (Amaryllidaceae and Liliaceae), 1834	6 0 0
Cathcart, J. F., Himalayan Plants, 1855	3 3 0
Clusius, C., Rariorum Plantarum Historia, 1601-5	5 0 0
Cooke, M. C., Illustrations of British Fungi (complete), 1881-91	31 0 0
British Fresh-water Algae, 1832-84	6 0 0
Curtis, W., and others, Botanical Magazine, 1787-1879	91 0 0
Flora Londonensis, 1777-98	3 10 0
Edwards, S., Botanical Register, 1815-47	44 0 0
New Botanic Garden, 1812	2 4 0
Elwes, H. J., Monograph of the Genus Lilium, 1877-80	10 0 0
Flore des Serres et des Jardins de l'Europe, 1845-76	3 0 0
Griffith, W., Indian Botanical Works (complete set), 1817-54	6 5 0
Herbert, W., Amaryllidaceae, 1887	2 16 0
Hooker, Sir W. J., and J. Bateman, Orchidaceous Plants (2 vols.), 1851-67	7 15 0
Hooker, Sir W. J., Exotic Flora, 1823-27	5 17 6
Hussey, Mrs., Illustrations of British Mycology, 1847-55	8 0 0
Jackson, B. D., Index Kewensis, 1898-95	7 0 0
Jacquin, N. J., Hortus Botanicus Vindobonensis, 1770-76 (3 vols., 800 coloured plates)	22 10 0
Plantarum Rariorum Horti Caesaris Schenbrunnensis, 1794-1801 (4 vols., 500 coloured plates)	31 0 0
Stapelliarum in Hortis Vindobonensibus, 1806, &c. (65 coloured plates)	14 5 0
Fragmenta Botanica, 1809	10 0 0
Jordan and Pourreau, Icones ad Floram Europae, 1866-68 (Nos. 1 to 56, 280 coloured plates)	9 15 0
Linden, J., Piscatores (vol. 1, 48 plates), 1860	5 10 0
Lindley, J., Collectanea Botanica, 1821	4 0 0
Sertum Orchidaceum, 1838	6 15 0
Loddiges, C., Botanic Cabinet, 1817-38 (a fine set, on large paper, with 2000 coloured plates)	38 0 0
Martius, Dr. C. F. P. De, Nova Genera et Species Plantarum Brasiliensium, 1824-32	15 10 0
Maund, B., Botanic Garden (vols. 1 to 13), 1825, &c.	13 10 0
Maw, G., Monograph of the Genus Crocus, 1886	8 5 0
Masson, Fr., Stapelliae Novae, 1795	8 10 0
Parkinson, J., Paradisi in Sole, 1629 (perfect)	22 10 0
Quar, D. Jos, Flora Española, 1762-84	8 15 0
Redouté, P. J., Plantarum Succulentarum Historia, 1799	12 0 0
Les Liliacées, large paper, 1897	50 0 0
Reichenbach, H. G., Icones Florae Germanicae et Helveticae (20 vols., 1811 plates), 1834, &c.	40 0 0
Ruiz et Pavon, Flora Peruviana et Chilensis, 1724-1802 (4 vols., 325 coloured plates)	25 10 0
Sander, F., Reichenbachia, 1888-98	29 0 0
Sinclair, Geo., Hortus Gramineus Woburnensis, 1816	5 0 0
Sowerby, J., Coloured Figures of English Fungi, 440 plates, 1797-1809	10 0 0
English Botany, 1790-1814 (36 vols., 2592 plates)	36 0 0
Wallich, N., Plantae Asiaticae Rariores, 1830-32 (a fine copy, with 300 plates)	13 0 0
Warner, R., Select Orchidaceous Plants, 1862-75	7 0 0
Wight, R., Icones Plantarum Indicae Orientalis, 1840-56	7 15 0
Illustrations to Indian Botany, 1840-50	7 15 0

The collection, which was not exclusively of botanical and horticultural works, comprised 287 lots, and produced a total of £1196 4s. 6d. W. Roberts.

NEW GARDENS FOR THE ROYAL HORTICULTURAL SOCIETY.—For the purpose of giving full effect to the decision of the general meeting of the society held on April 25, requesting the council to examine further sites for the new gardens of the society, the council request any Fellow who knows of a suitable position to be so kind as to send at once to the office of the society detailed particulars of the acreage, distance from London, nearest railway station, aspect, nature of soil, name of owner or agent, and price. W. Wilks, Secretary, R. H. S.

REJUVENATING A MARKET.—It is something like twelve months since we briefly drew attention to the proposal to rejuvenate the old Portman Market by a public company. Time has passed, the company was "floated," the old site taken over and grubbed up, and on Saturday last the foundation-stone of the new market buildings was laid by Sir W. POLLITT, General Manager of the Great Central Railway. The new buildings, which will probably be opened in November next, will occupy an area of 43,426 sup. feet, and will provide 175 stands, stalls, hanging-spaces, and suitable offices. In addition, on the frontage to Church Street, there will be erected twelve handsome shops, and there will be ample accommodation for cold storage.

SPORTS.—Mr. JUSTUS CORDEROY sends us specimens of an umbellate Primrose, with markedly leafy calyces. He also sends a shoot with green leaves proceeding from a branch of the purple-leaved Nut, an interesting case of reversion.

CAPE FRUIT.—The ss. *Danneberg Castle*, of the Union Castle line, has arrived with 495 cases of Grapes; and the *Arundel Castle* brought 972 cases of Grapes. The Raisin Blanc turned out in both cases in excellent condition, those by the *Arundel Castle* being about the best this season. A large number of boxes realized as much as 30s. per box at Covent Garden. The Hannerpoot Grapes arrived once more in a bad and wet condition, some practically had to be given away at 2s. or 3s. per box. Consignees in London now seem thoroughly convinced that the Hannerpoot class do not carry well; whilst on the same steamer the Raisin Blanc turn out well, Hannerpoots are bad, and seem to get worse as the season advances. It now remains to be seen what course the growers will take to get over this difficulty; probably if Hannerpoots were thinned during growing they would carry better. We believe no thinning is done by Cape growers. Large quantities of Grapes have arrived this season, but it appears that there is room for larger quantities of the right sort.

"THOMPSON'S GARDENERS' ASSISTANT."—We are informed that the long expected new edition of this standard book has been transferred from Messrs. BLACKIE & SON to the Gresham Publishing Company, by whom the work will be issued almost immediately. It has had many editors, but the one to bring it to a successful issue is Mr. W. Watson, of Kew.

APPLES FROM THE ANTIPODES.—The officers of the Orient Royal Mail Steamship Company send us the following:—"We learn by telegram from Australia that the following additional shipments of Apples have been made: *Omrah*, 28,000 cases; *Australia*, 21,000—total, 49,000 cases.

TEA CULTURE IN THE UNITED STATES.—For some years past, Dr. C. U. SHEPARD, special agent of the U.S. Government, has been conducting experiments at Pinehurst, near Somerville, South Carolina, on the cultivation of the Tea-plant; and now we learn that 50 acres are planted, and it is expected that the yield of the plants on arriving at full bearing will be about 10,000 lb. of high-grade Tea annually; and this, it is declared, will suffice to show whether Tea can be profitably grown in the United States under existing local conditions of climate, soil, &c. The problem of cheap labour has been solved in the matter of leaf-gathering by training negro children in leaf-picking.

Experiments conducted on a small garden (of 2 acres) has proved that high-grade Tea can be produced to nearly twice the amount to that on the same area at Hangchow, and from the same variety of plant.

AN HONOURED NURSERYMAN.—Mr. JOHN GREEN, F.R.H.S., Managing Director of the horticultural department of "HOBBIES, Ltd.," Norfolk Nurseries, Dereham, has been elected chairman of the Dereham Urban Authority, and *ex officio* Justice of the Peace for the County of Norfolk.

PROCEEDINGS OF THE NETHERLANDS HORTICULTURAL SOCIETY.—We have received a copy of the proceedings of the Permanent Committees of

WHEN NOT TO SPRAY.—"Don't spray when the tree is in blossom. Don't spray unless you know for what you are spraying. Don't spray with a worthless sprayer. Don't spray too early or too late in the season, but spray in time. Don't expect to spray to save either fruit or foliage after the pests have already destroyed it. Don't expect one form of spray to suit all kinds of leaves, and to kill all kinds of pests. As well expect one kind of medicine to cure every disease. Don't be so foolish as to condemn spraying, but read the excellent Government and State reports with the wonderful results. Don't put too much poison in the barrel, or too much spray on the leaves, so that you will burn the foliage, and then say there is no good in spraying. Don't

of London, and no candidate is eligible whose parents are in receipt of more than £400 a year. (b.) Seven junior scholarships in practical gardening, open to boys between the ages of 14 and 16. These are tenable at the school of practical gardening conducted by the Royal Botanic Society in Regent's Park; they give free education for three years, together with a maintenance grant, varying from £20 to £50 a year. The scholarships are awarded in the consideration of the merits and attainments of the scholars, and no set examination is held. Candidates must be resident within the administrative County of London, and no candidate is eligible whose parents are in receipt of more than £250 a year. Application forms for all London County Council scholarships must be obtained from and returned to the Technical Education Board, 116, St. Martin's Place, W.C., early in May.

HORTICULTURAL CLUB.—The usual monthly dinner and conversazione will take place on Tuesday, May 8, at 6 P.M. An address will be given by M. S. A. DE GRAAFF, entitled "Ramblings in Java."

THE WEATHER IN WEST HERTS.

SELDOM has vegetation made such rapid advances in so short a time as during the past week. This was owing to the impetus given it by the exceptional heat of the previous week, as low temperatures have mostly prevailed since the termination of the latter period. Frosts were registered on five nights, and on the coldest night the exposed thermometer showed twelve degrees of frost, which here and there nipped the delicate foliage of my Roses. The ground temperatures have fallen somewhat during the week, but are still rather higher than is seasonable. Light falls of rain took place on three days, but were scarcely sufficient to wet the surface of the ground. In fact, no measurable quantity of rainwater has come through either of my percolation gauges for a fortnight, and on the 30th ult. the percolation through both of them ceased together.

APRIL.

The temperature was very variable during this month, but taken as a whole it was about average. On the hottest day, the shade temperature rose to 75°, and on the coldest night the exposed thermometer indicated thirteen degrees of frost. The weather was cold at the beginning and end of the month, but continuously warm for a fortnight in the middle of it. Rain fell on fifteen days, but the total measurement amounted to only an inch—equivalent to about four and a half gallons of water on each square yard of surface in my garden. Three-fourths of the total quantity was deposited during the first week of the month, so that very little was left for the remaining three weeks. The total measurement was only about half the mean for the month. The sun shone on an average for nearly six hours a day, or an hour a day in excess of the April average. It is now seven years since we have had so sunny an April. The winds were as a rule of rather less than average strength. *E. M., Berkhamsted, May 1.*

SCOTLAND.

THE NEW WINTER GARDENS AT ABERDEEN.

At a meeting of the Links and Parks Committee of the Aberdeen Town Council, held on Friday, 27th ult., it was agreed that Mr. Harper, the custodian of the Duthie Public Park, should visit London for the purpose of inspecting the plant-houses and conservatories there, with the view of selecting suitable plants for the new winter garden. It is understood that Mr. Harper will visit Kew gardens, and various places in London, and other nurseries in the vicinity of the metropolis.

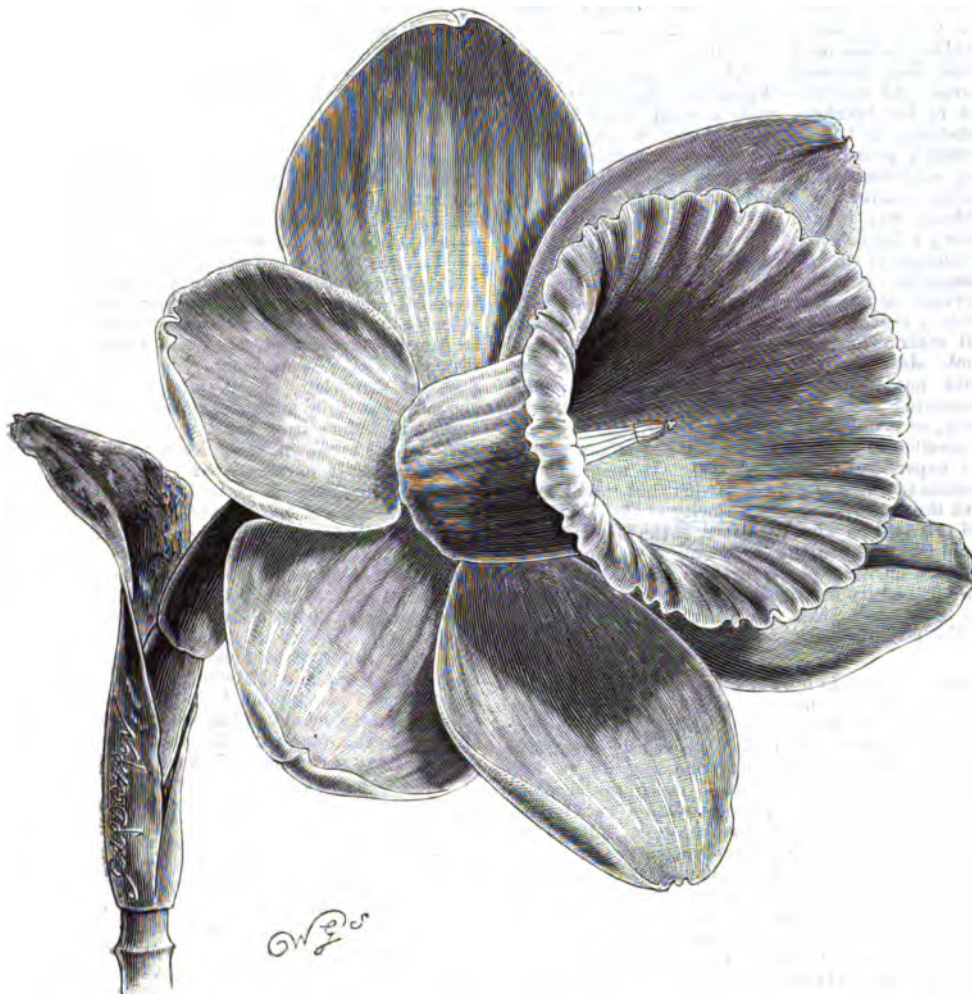


FIG. 91.—NARCISSUS "WILHELMINA."

Shown by MM. J. de Groot & Son, and recommended an Award of Merit at a meeting of the Royal Horticultural Society on April 24. Colour of the trumpet rich yellow, perianth segments pale cream colour.

the Netherlands Horticultural and Botanical Society for 1899. This includes lists of the exhibitors at the exhibitions, of plants for which certificates were given, and reports of the meetings held during last year in Amsterdam.

"AMERICAN FRUIT & VEGETABLE JOURNAL."

—The March issue of this newly-established journal is before us, and contains much that is interesting to the classes for whom it is intended. There are plenty of illustrations, and the reading matter being for the most part arranged in the form of paragraphs, cannot prove tedious. The paper is published at 713, Masonic Temple, Chicago, Ill.

M. JULES VACHEROT.—The head gardener of the Paris Exhibition has been nominated Chevalier of the Legion of Honour.

expect the spray to make sour Apples sweet, summer Apples keep, or to take the place of cultivation and fertilisers." *American Fruit and Vegetable Journal.*

SCHOLARSHIPS IN HORTICULTURE.—We are informed that the Technical Education Board of the London County Council is offering for competition the following scholarships for the encouragement of the study of horticulture and gardening:—(a.) Two scholarships tenable at the Swanley Horticultural College, Kent. These scholarships give free board and tuition at the college for two years, and may be reckoned as of the value of £60 a year. They are open to candidates between the ages of 16 and 21 years; one is open to young men, and one to young women. The scholarships are awarded on the result of competitive examination. Candidates must be resident within the administrative county



HOME CORRESPONDENCE.

THE ROYAL HORTICULTURAL SOCIETY.—At the general meeting of the Royal Horticultural Society on April 25, although the great desirability and even pressing need of a hall of its own was expressed, and numerous allusions were made to the failure of the last attempt to raise the needful £40,000 (£27,000 of which was, it appears, actually obtainable), the real reason of that failure found no expression, viz., the unfortunate Baring crisis which occurred at that juncture, and by its paralyzing effects on finance generally, nipped the hall scheme in the bud, and caused it to be dropped. Assuming that to have been the cause of the collapse, and that the scheme was otherwise sound and practicable, why should it not be revived now that, save the unfortunate war, matters are in a flourishing condition? Since the Baring period, the Society itself has immensely increased its Fellowship, and consequently its sphere of influence. At that time its period of misfortune dated back but a few years, and hence these subsequent years of increasing success and demonstrations of increasing utility, all combine to justify the scheme far better now than then. The site then in view may now be occupied; but surely there are others. There is, I believe, a projected extension of the Embankment westwards of the Houses of Parliament, where in all probability a particularly eligible site might be secured on far more moderate terms than on the old Embankment so much nearer the City. The Government owes a far greater debt to the Royal Horticultural Society as a practical beneficial educating and elevating factor in the country's progress than it does to the Royal Botanic Society, which is practically subsidised liberally by its tenure of part of Regent's Park. Would it not be possible to bring this fact home to the notice of the powers that be, and thereby possibly obtain a concession of part of the land to be newly created, either as a free site, or, at any rate, on specially favoured terms? Such an acquisition or concession would simplify the project enormously, and once in prospect, would greatly facilitate the acquisition of the funds required for the building itself. The carrying out of the project would also form a far better method of celebrating the centenary of the Society than the acquisition of new gardens, which however useful they might be, would never attract the public as much, or teach them so much, as would a fine floral hall at the West-end, with its periodical concentration of the best of the floral, fruit, and other developments, for exhibition, and easy appreciation. The hall is an absolute need, and a very present one; the new gardens are no such pressing necessity, seeing that there is still a twenty years' lease to run of the old one, with respect to whose unfitness many remarks, drastic and to the point, at the general meeting, indicated very opposite opinions—while as regards the hall, there is absolute unanimity. The revival of the hall scheme by the Council would reflect in no way upon the wisdom of the resolution proposed by them, and carried in principle at the meeting, with regard to the acquisition of a new garden; that is a separate matter, except, of course, in so far as it might involve an appeal to the Fellows and others for the needful funds, which might clash with the financing. I submit, however, that as regards the hall, and especially as regards its suggested site, time is a vital point, and delay would probably be fatal to any existing chance of obtaining it, owing to prior distribution. *Chas. T. Druery, F.L.S., V.M.H.*

— At the special meeting held on April 25, the friends of the Royal Horticultural Society came to the rescue in an admirable manner, and thanks to the laud statements in the *Gardeners' Chronicle*, the necessity for a combined effort to save the Society

from a false step was tacitly recognised. To Sir William T. Dyer, Sir Michael Foster, Dr. Masters, and Mr. Elwes, the gratitude of the Fellows will always be due, for the independent position they took up, and the serious difficulties and entanglements which were by this means avoided. Mr. Arthur Sutton still further merits the highest credit for having asserted his opinions in such a manly and straightforward manner, and his letter published in last week's *Gardeners' Chronicle* reviews the whole matter in such a masterly manner as to leave no doubt in the minds of the majority that the proposed scheme was both ill-advised and risky. Attention has been called to the fact that the Chiswick garden lease has still a period of twenty years to run, and a good deal was made of its surrender value, though we have nothing definite on the point. It would be interesting to have some expert's opinion on this matter, for it has been a general opinion that, granted under such special terms, this value is more imaginary than real. That a better garden might be found there can be no doubt, but Chiswick might be enormously improved with moderate expenditure rightly directed. One of the speakers made a point when he said something to the effect that the Society would present a poor figure as teachers of horticulture if they confessed that they gave up their Chiswick garden because they could not manage it. If any evidence was needed of the direction which the Society's funds could be expended to the best advantage, it was afforded by the exhibition and Committee meetings in the Drill Hall on the previous day. The place was so packed with exhibits that it was scarcely possible to enter the hall without damaging those near the doors; the whole place was also crowded with visitors, who could not inspect the numerous beautiful and interesting plants satisfactorily. It must occur to many, as it did to Sir Michael Foster, that it should be possible to improve such a state of affairs with a less expenditure than £40,000. It may not be possible to find a site for a garden that "will meet with the approval of the majority of the Fellows," and it would be wise, therefore, if the Council gave some attention to the provision of a more commodious meeting place, for this would be a much more generally satisfactory means of celebrating the Centenary than any of the other schemes. *A Northern Fellow.*

— Once again horticulture and horticulturists are indebted to the *Gardeners' Chronicle* for its full report of the meeting, and for a wise and sound judgment in regard to this important matter. Thanks to both, the Society is not tied to Limpsfield, a place 3 miles up a steep hill from the nearest railway station at Orled; nor are the bye-laws passed in a lump, nor any irrevocable step taken as to the new exhibition hall or the horticultural college. This halt, which affords time for discussion, is, so far, of great value, though it has been discounted considerably by the eager haste with which so many of the Council and Fellows pressed forward the matter, and held to two untenable propositions, viz., that the Chiswick gardens are played out, and the air of the western suburbs of London too foul for horticultural purposes. Such statements made the worst that could be made of the valuable asset, the remainder of the twenty years' lease of the garden in the hands of the Royal Horticultural Society. If such statements which appeared to be generally accepted by the meeting are to be accepted, the question will be asked, "Who is responsible for this state of things?" Mere land-grabbers may impoverish, exhaust, or foul the land. But skilful cultivation tends to leave the soil richer, better adapted for the growth of plants, and cleaner than it was originally; and this testimony is amply afforded by the condition of most of the private gardens, nurseries, and market gardens throughout the country. Neither can it fairly be contended that any excessive cropping of the land has occurred at Chiswick. The testing of seeds, the trials of various kinds of fruit, and of vegetables, and flowering plants, takes but little out of the soil, compared with the continuous cropping of private and market gardens, and of orchards, the produce of which goes exclusively to the public markets. But then air pollution is added to the so-called soil exhaustion, and these two so-called reasons, suffice to secure the general approval of the policy of

leaving Chiswick, and seeking a better garden elsewhere with which to welcome the centenary of the Society four years hence, and with the twenty years lease of Chiswick Gardens still to run. Surely it might prove an equally useful and honourable course to prove to the five millions of Londoners, the possibility of growing good fruits, flowers, and vegetables, for a hundred years if need be, without exhausting the soil. And as to air pollution, surely one of the primary duties of the Council of such a Society was, and is, to show as far as possible how much our present laws enable us to do in this direction. A case was reported a few weeks since, when a nurseryman at the East End obtained £400 damages against the Great Eastern Railway for injury to his stock-in-trade. The award was appealed against, but it may be confirmed. By skilfully cultivating the old Chiswick garden, and abolishing all preventable smoke, and suppressing chemical fumes, the 5,000,000 Londoners might be enabled to witness a magnificent demonstration at Chiswick for twenty years more of the power and potency of a good garden, to sweeten and purify the air, and leave the earth and all its environments richer, purer, and better than it found them. *From the North.*

— I went to the meeting of the Royal Horticultural Society on April 25 with an open mind as to the removal of the experimental garden from Chiswick. I left it with the conviction that, by the passing of the resolution authorising the Council to do this, and acquire the site at Limpsfield, a leap in the dark has been taken that may have disastrous financial consequences. It is clear from the President's evasive answer to a question that was put to him on the subject, that the Council has no idea on what terms they will be able to dispose of Chiswick. Is it asking too much to suggest that they might enlighten the Society on this point before it is too late? Are they authorised by the terms of their lease to dispose of the remainder of it (twenty years) for building purposes? If not, how is it to be got rid of? The expenses of Chiswick last year amounted to £1810; the year before to £1909! For this I believe there is little to show except the plants distributed among the members, and the comparative trials of vegetables, &c. These last are of little value, for every gardener knows that the best variety in one garden is not necessarily, or even probably, the best under different conditions of soil and climate. Are, then, the plants distributed worth this heavy expenditure? I very much doubt if the majority of the Society would think so if brought face to face with the figures! It is, of course, quite another story if the Limpsfield site is to be worked in connection with the proposed School of Horticulture. But in that case the Society ought to know, before purchasing the site, what support it may expect from the Board of Agriculture, County Council, &c. On the other hand, the total cost last year of shows and prizes was £1909, and the receipts from shows and meetings was £1843! Need I say more to point out in which direction the Society's money may be most profitably expended? *Alfred O. Walker, Chester.*

— Realising at the close of the recent special Royal Horticultural Society meeting the grave difficulty presented to the Fellows of discussing the merits of the Limpsfield site for the new Chiswick, or, indeed, of any other site, without adequate knowledge, I suggested to Messrs. J. Wright and G. Gordon that we should visit Limpsfield and judge of the merits or otherwise of the ground there for garden purposes, which had been so far discussed. This was agreed to, and to ensure the securing of a guide, we went over to the Society's office and saw the Secretary, who at once promised, failing anyone else, to be our guide to the ground on the 4th inst. That offer we accepted, but stipulated that any impressions of our own should be absolutely unbiased and impartial, and be published in the gardening papers. Mr. Wilks readily agreed, as he said that the Council courted in the matter the fullest inquiry. The matter has, since the meeting, been somewhat complicated by the publication in your columns of Mr. Arthur Sutton's very freely written report and criticism of the site, without our having also the benefit of the publication of the report, which, I gather from what has been privately told me by one of the Council's experts, and by what fell from the President at the meeting, was of a far more

optimistic kind (see p. 276). When doctors differ, it seems as if one's only resource was to take the responsibility of seeing, examining, and determining for one's self, and because of the uncertainty hanging over the matter that course I and my friends will take. We go not on behalf of anybody, but solely as independent observers. We pay our own expenses, and shall give our opinions without bias and with absolute freedom. That seems the desirable course for Fellows generally to take. *A. D.*

THE SEEDING OF BEGONIA GLOIRE DE LORRAINE.—In the *Gardeners' Chronicle*, April 21, Mr. Coomber writes about *Begonia Gloire de Lorraine* being shy to seed. In the garden of Hornby Castle, Lancaster, there is a small plant with fourteen pods bearing seed, and the plant which bears them was in bloom most of the winter, and is now so full of bloom as to almost hide the foliage. A number of shoots suitable for making cuttings were taken from plants last September which have bloomed in thumbs, and I notice that some of these are likewise carrying seed-vessels. There can be no doubt that these plants were cuttings taken from the parent seedling-plant, and possibly from other plants which do bear seed. Cuttings from certain plants could be taken that would always furnish seed, providing the flowers are properly fertilised. *Joseph Watson Pybus.*

EARLY MARGUERITE CARNATIONS.—I send you a few flowers of *Marguerite Carnations* from seeds sown in the month of April, 1899. The plants were planted out in May, and lifted during the third week in September, when they were coming into flower. I have been cutting plenty of blooms all the winter, and at the present time the plants are literally covered with bloom, and far surpass the named varieties for floriferousness. *James Sherlock, Shockerwick Gardens, Bath.* [The flowers are most beautiful, and of many shades of colour. *Ed.*]

STEALING FLOWERS AT SHOWS.—The Temple Show is nearing us once more, and it behoves us all to aid each other in preventing anyone appropriating even a bloom. It is not an unheard-of thing at shows all the country over, and it has been very forcibly brought to my notice once more by someone having taken a bloom off my *Odontoglossum crispum* (*Imperatrix roseum*), at the Drill Hall on the 24th ult. I have no doubt this magnificent variety was chosen for definite reasons. Of course I blame no one connected with the Royal Horticultural Society as it would not be done were any official near, and we cannot expect our plants to be watched all the time. It is an extremely annoying thing, and the surest means of preventing it is to ventilate the subject in the Press. The old offenders may not care to repeat it; another time they might be detected. *De B. Craushay, Rosefield, Sevenoaks.*

PARSNIP TENDER-AND-TRUE.—As the Editor of the *Gardeners' Chronicle* enquires on p. 235 if I had grown the above variety by the side of Sutton's Student, I may mention that for two seasons I grew the two varieties together in different parts of the garden, always with the same result—that *Tender-and-True* proved itself a great advance on the older variety; an opinion which, I feel confident, will be fully borne out by anyone giving it a fair trial. *J. G. W., Beesborough.*

— I am desirous to add my testimony to the value of *Parsnip Tender-and-True*, which I have grown for market, and find it a profitable one. I believe it will become a very popular variety. *A. J. Brown.*

A GIANT TULIPA GREIG.—A particularly fine form of this gorgeous Tulip, one of an importation of last year, is now in flower here. The plant is 18 inches high; the flower measures 8 inches across when fully expanded, the inner segments of which being $4\frac{1}{2}$ inches long and 3 inches wide, the three outer somewhat smaller. The veins of the petals are very prominent, especially near the margins, giving the flower a delightfully crimped appearance. The leaves show greater vigour than is usual in this plant, and they are also more heavily marked and spotted. The plant is growing in the midst of a patch of typical *T. Greig*, compared with which it is distinct in being twice as large in the flower, and one-third taller in the entire plant. Though the flower is a little coarser than that of the type, it is none the less brilliant in colour. Should this

robustness prove to be inherent, and I hope it may be, it will be a valuable representative of a species notoriously difficult to grow successfully for any length of time. I have seen a great many plants of this species in flower, but have met with nothing approaching this form in size and vigour. *G. B. Mallett, Isleworth.*

LATE-FLOWERING APPLES.—When will our great growers give us a race of June-flowering Apples raised from *Reinette du Canada*, or yet later-blooming varieties that will enable growers successfully to baulk May frosts by running their Apple-trees into blossom through June? *D. T. F.*

APPLE NEWTON WONDER.—This I consider a very nice variety, and an excellent keeper. I have just finished my last specimen, and it was perfectly sound, clear, and firm, as remarked by other growers of it. It is a variety worthy of adding to a collection; its many good qualities will recommend itself. *J. C., Oxon.*

WEATHER IN NORTHAMPTONSHIRE.—We registered 5° of frost last night at an elevation of 485 feet. The weather of last week was so intensely hot on two days that the mercury reached 101° Fah., and vegetation was brought along very rapidly; but last night a very severe check was received. Some Potatoes (*Sharpe's Victor*) that were earthed up, but the tops were not through the ridge, I fear are destroyed, the stems are quite rotten this afternoon. I have also some early Sprouts, Cauli-flower, Savoy, Turnip, &c., sown on a warm border, and the majority of them are quite black. I do not think the Peach-bloom is affected, and Apricots and early Plums are already "set." At 6 o'clock this morning the ground was quite hard. To-day's wind is S.E., most bitterly cold and cutting. There is very bright sunshine, and it is a most trying day for garden crops. *H. Kempshall, Lamport Hall Gardens, Northampton, April 27.*

FROST INJURIES IN BEDFORDSHIRE.—On Thursday, April 26, a disastrous frost was registered here, the thermometer on the ground recording 18° Fahr., or over 13° of frost. The result is severe injury to flowers and plants. Plums and Damsons have a most abundant display of blossom this season, and all the flowers expanded at the time were destroyed. Some of the later varieties and trees, however, afford the prospect of a crop. Early-flowering Pears are also severely cut. Gooseberries have suffered slightly, Red Currants considerably, and in some places the early Strawberries have their leaves and flowers blackened, though the latter are still in the bud-stage. Quantities of *Asparagus* have been cut down, early *Rhubarb* is somewhat damaged, and Cabbages have all their fully-developed leaves browned. In one low-lying district, acres of Cabbages have been greatly injured; while seedling vegetables, like Brussels Sprouts, have been generally destroyed. *R. Lewis Castle, Ridgmont.*

SOCIETIES.

ROYAL HORTICULTURAL.

Narcissus Committee.

APRIL 24.—The following particulars are given in addition to those which appeared in our last issue on p. 4 of the Supplement.

The July-like heat following abruptly upon the winter of earlier April, acted like some transformation machinery upon the Narcissi, bringing them to the hall and on to the table in an almost embarrassing crowd. The whole Committee appeared to be present, and it may be noted in passing that the members of this Committee travel further and perhaps work harder during the weeks of their session than those of any other.

The feature of the show, perhaps, was the large exhibit of new seedling forms, staged by the Rev. G. H. ENGLEHEART. Many of the fine varieties had been shown before in smaller quantity, but there were many novelties. So many of the flowers have broken down the old sectional barriers, that it is impossible to assign them to the received classes. Thus, *Brigadier*, *Solfaterre*, and others, are of *Nelsoni*-like substance and habit, but with widely-expanded crowns. *Solfaterre* is a wonderful flower of immense spread, and uniform delicate lemon colour. *Brigadier* is a bicolor *Sir Watkin*, but far superior in finish. Many of the *Leedsii* class appeared to have made an excursion into new forms. *Diana* must be called a *Leedsii* if anything, but has an enormous flat disc-like crown of pale canary-yellow. *Lillian* is nearly a trumpet in proportions, and of uniform clear ivory. *Chancellor* is a

flower of superb substance, the perianth firm and broad, with a spreading crown of leathery substance and rich yellow. *Virgil* and *Londor* are *Poeticus* varieties of grand petal and vividly-coloured eyes. *Flambeau* appeared even more brilliant in its splendour of scarlet and yellow than last year. Many others of the seedlings deserve mention, notably an astonishing hybrid of *N. triandrus*, and *Madame de Graaf*, a large flower of flawless form and pure white throughout.

Miss WILLMOTT exhibited, and gained First-class Certificates for two *Triandrus* hybrids, raised by Rev. G. H. Engleheart, and developed in the splendid Warley soil; Mrs. Berkeley, *N. triandrus* × *Minnie Hume*, and *Countess Grey*, *N. triandrus* × *Horsfield*. These flowers were as large as the very finest pale *incomparabilis* or *Leedsii* kinds, and are amazing examples of the size given by fresh blood, even from a parent of small size. *Narcissi* Charles Wolley-Dod and Eleanor Berkeley, also Mr. Engleheart's seedlings, came from Warley, and gained Awards of Merit. *Diana*, *Chancellor*, and *Virgil* from Mr. ENGLEHEART's exhibit received the same award.

A great number of large trumpet *Narcissi* came from Holland, many too coarse to rank very high. Mr. VAN WAVEREN, Hillegom, Holland, however, gained a deserved First-class Certificate for a flower of astonishing size and good colour and finish—*Van Waveren's Giant*. *Olympia*, from the same grower, received an Award of Merit, as did *Wilhelmina* (fig. 91), shown by J. DE GROOT & SON.

Lecture.

THE CULTIVATION OF THE NARCISSUS.

In the afternoon a lecture on this subject was given by the Rev. S. Eugene Bourne, M.A., a very successful amateur cultivator. Mr. Bourne commenced by singing the praises of this popular plant. A representative collection will afford blooms from the beginning of March to the middle of May. The blooms will last from eight to ten days in water. The plants are elegant, graceful, and beautiful, and the *Narcissus* certainly is the king of spring flowers. The task Mr. Bourne had set himself was that of seeking to increase the number of cultivators of *Narcissus* by showing how simple were their requirements.

But experiences, even in details of cultivation, differed considerably, and he had no wish to dogmatise too much, but rather to give his opinions formed upon the experience gained in his own Lincolnshire garden. The three great divisions of *Narcissus* were next explained, viz., (1) the trumpet *Daffodils*, (2) the crown *Narcissus* including the *Poeticus*, *Burbridge*, *Jonquills*, &c.; and (3) the section that includes *Leedsii*, *incomparabilis*, *Barri*, *odorus*, and *triandrus*. The latter section has been produced by natural and artificial crossing between varieties of the other two divisions. In respect to the question of soil, Mr. Bourne said that though the *Narcissus* is not very particular, the best results can only be obtained from soil that is perfectly suitable.

That in his own garden was very good, but decidedly "strong" loam, not very deep, and resting on hard clay. At first he got large blooms from his plants, but a large percentage of the bulbs became affected with "basal rot." He therefore dug out several sites, well drained them, and incorporated material with the soil that made it lighter. The result was excellent; he thought, therefore, that the best soil for *Narcissus* was "a not too heavy loam," and one that possessed "a certain character of grittiness." For the weaker-grower section of *Narcissus*, said Mr. Bourne, he would recommend "a less heavy soil inclining to light."

SITUATION AND POSITION.

It was no doubt delightful to see *Narcissus* in irregular patches in the wild garden, and some of the commoner sorts might be planted in this manner. But Mr. Bourne thought that the rarer varieties, as well as all those of first-rate quality, quite deserved a place by themselves, where they can be treated as they require. Then the advice was given that suitable portions of the kitchen-garden should be assigned to *Narcissus*, and this was followed by the assurance that if the "yellow fever" increased in particular cases, and the cultivation of the *Narcissus* threatened to interfere largely with the supply of vegetables, "the cultivation of vegetables pays less than that of *Daffodils*, and it is less expensive to buy vegetables than a collection of first-rate *Narcissi*." Therefore, plant them in the kitchen garden, and for convenience, in rectangular beds. The question of aspect was not a very important one. Most of the varieties will succeed in any aspect, but prefer a little shade from sunshine during the hottest portion of the day, and many varieties are very grateful for this shade. White varieties of the trumpet section do best when in partial shade, and when they have to fight for their living. Plant them then, on the north side of a row of Apple-trees.

The *Narcissus* does not like to be planted in a loose soil and after deeply digging and properly draining the beds, the soil should be given time to settle again firmly.

TIME AND METHOD OF PLANTING.

The "rooted conviction" of many people that *Daffodils* should be planted on *Guy Fawke's Day* was scouted. The *Poeticus* varieties, said Mr. Bourne, required to be planted first, and they should be in the ground by the end of July. Then follow with *Barri*, the *Star Narcissi*, and finally the *Daffodils*. The planting of all should be finished in August. The *Tenby Daffodil* and *N. maximus* are exceptions among the Trumpets that need to be planted at the same time as *N. poeticus*.

Change of soil and locality was advantageous, and might be done to the full extent possible.

Plant the bulbs, said Mr. Bourne, in rows 1 foot apart, and put the bulbs 3 inches distant from each other. These dis-

tauces were recommended because the finest quality blooms could be thus obtained, and the distance between the rows was sufficient to allow of the hoe being used between them. White Daffodils were described as exceptions to this rule, and may be planted closely, almost to touch each other.

The proper depth to plant was explained thus. There should be a depth of soil above the neck of the bulb when planted, one and a half times the depth of the bulb itself. So that just as bigger seeds are covered more deeply than lesser ones, so should the larger bulbs be given greater depth.

The Daffodil maximus was again an exception, and might be planted 5 inches deep. Put in the bulbs when the soil is nicely damp, and settle the soil somewhat about and under them. Mr. Bourne generally puts a little sand under and above bulbs of choicer varieties, and in all cases the practice may be beneficial. Planted as described above most varieties, said Mr. Bourne, may be left undisturbed for two years, and some for three years. Weakly growing varieties may be moved each year, if desired, until they prove to be suitably placed.

NOURISHMENT.

No raw manures should be present in the soil at time of planting. The most Mr. Bourne would recommend in this direction, was that the stronger growing varieties might follow an early crop of Potatoes. He had, however, found it to be beneficial to replace part of the soil of a bed with some turfy loam, preferably of a yellow colour, and containing some amount of iron. Basic slag and crushed bones could be used as a top-dressing soon after planting. One and a half ounce of bone-meal would be sufficient per square yard.

LIFTING THE BULBS.

Early planting was desirable, reiterated Mr. Bourne; but even more essential to success was it that the bulbs be lifted sufficiently early. Some varieties have no resting period, and others but a short one. Whenever in doubt, remember, "better be too early than too late." If roots commence to grow before lifting is done, irreparable injury to the bulbs is probable. N. poticus should be lifted before the foliage shows the slightest sign of fading.

If the sun be shining brightly at lifting time, remove the bulbs at once into the shade; store them for the winter in a cool airy place, in shallow receptacles.

PESTS.

Mr. Bourne had little to say about these. Neither fungoid nor insect foes seriously injure the Daffodil in his Lincolnshire garden, which is too cold to suit the Narcissus-fly. Black canker is only occasionally seen, and Basal-rot causes little mortality when "sound rules of cultivation" are adopted.

FORMING A COLLECTION.

Some excellent advice was given upon this part of the subject. A collection should be representative, and should include only the best of those blooming at the same date. That the season of bloom shall be a long one, the earliest and the latest flowering varieties are necessary.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

APRIL 26.—Present: G. S. Ball, Esq., chairman; and J. Leemann, R. Johnson, W. Holmes, C. Parker, J. Cypher, and P. Weathers (Sec.). There was quite a full show of Orchids at this meeting, and some choice varieties.

J. LEEMANN, Esq. (gr., Mr. Edge), staged a charming group of plants, principally Cattleyas, amongst which were fine forms of C. Mendell, several splendid well-flowered C. Lawrenceana, a very fine form of Lælio-Cattleya × callistoglossa, Lælia × Latona, and that very old favourite, L. Digbyana (Brassavola). A good form of Odontoglossum Ruckerianum was included.

Mr. J. CYPHER had a group of good plants, in which several forms of Cattleya Mendell were noticeable; Cattleya citrina was in evidence, as were also a charming little batch of Sophronites grandiflora, the latter adding much charm and life to the group.

T. BAXTER, Esq. (gr., Mr. Roberts), had a good display, principally of Odontoglossums, two of which were very good. O. crispum Baxteri is a fine spotted form which we all like so well; there were only four flowers on the spike, and doubtless when brought again before the committee with a full spike, it will receive highest honours. O. Adriane Baxteri is also a superb flower—certainly the best form we have yet had in Manchester; a large quantity of this natural hybrid appears to exist in this country, and it is constantly cropping up in collections, and seems to have been imported as Odontoglossum crispum. The variety, although it is doubtless a hybrid, is so nearly allied to O. crispum that it is difficult to draw a distinction.

O. O. WRIGLEY, Esq. (gr., Mr. Rogers), staged a small group of plants, principally Dendrobiums, amongst which were some good plants and varieties of D. nobile; there were also some good varieties of Cyrtopodium Mastersii, and a beautiful form of C. bellatulum.

G. W. LAW-SCHOFIELD, Esq. (gr., Mr. Shill), sent a very charming Cyrtopodium ×, called Mary Beatrice (C. bellatulum × C. Goweri magnificum); it will rank as one of the finest of this section, and is somewhat like C. × Fowlerianum; in colour it is almost uniformly of a rich claret, with darker lines running vertically through the dorsal sepal, as seen in C. Lawrenceanum; the petals are 1 inch wide, perhaps more, and are a rich reddish-brown in colour, with a dark brown spotting all over them.

G. SHORLAND BALL, Esq. (gr., Mr. Gibbons), contributed one of the prettiest Orchids we have yet had at these meetings, Angraecum Sanderianum; the same plant was exhibited last year with two fine spikes of flowers, and received a First-class Certificate and Cultural Certificate. This year the same plant is in fine condition, with three better spikes even than last year. Mr. Ball is to be congratulated upon his management of this fascinating Orchid.

T. STATTER, Esq. (gr., Mr. Johnson), had a very good plant of Cattleya intermedia alba, which has been before the committee previously; two leads were in flower, and the committee voted it a Cultural Certificate. Dendrobium Hildebrandti alba came from the same collection, and a very good Cattleya Mendell.

W. DUCKWORTH, Esq. (gr., Mr. Tindall), showed an ordinary form of Lælia purpurata, called Victoria.

H. PARTINGTON, Esq., sent a nice variety of Odontoglossum × Adriane.

H. SHAW, Esq. (gr., Mr. Cliffe), showed Lælia × Latona, Heathfield var.

E. H. SEDDON, Esq. (gr., Mr. Milne), had a very nicely-flowered plant, and a good variety of Cattleya Schroderi.

Mrs. STANLEY CLARK (gr., Mr. Edwards), had a good thing in Cyrtopodium Curtisi var. tenebrosa, a flower of very fine dimensions, and deeply coloured.

Messrs. F. SANDER & Co. staged a few good Orchids, including Cyrtopodium × Mrs. Leemann (C. Rothschildianum × Morganii Burfordiense), the parentage being traceable in the flowers. Two good forms of Odontoglossum triumphans were exhibited by the same firm.

Messrs. CHARLESWORTH & Co. had a distinct Cattleya Schroderi var. Neptune, with a lip having very peculiar markings.

Mr. A. J. KEELING staged a small group of plants, in which were some excellent Dendrobium devonianum.

R. ASHWORTH, Esq. (gr., Mr. Pidsley), sent a few well-grown plants, a fine piece of Odontoglossum vexillarium, a good form of O. polyanthum, O. Adriane var. Fascinator, and the handsome hybrid Masdevallia Pourbaixi.

FIRST-CLASS CERTIFICATES.

Odontoglossum × Adriane Baxteri—T. Baxter, Esq. Odontoglossum Ruckerianum var. illustre—J. Leemann, Esq.

AWARD OF MERIT.

Cyrtopodium Curtisi tenebrosa—Mrs. Stanley Clark. C. × Mrs. Leemann—Messrs. Sander & Co. Dendrobium × melanophthalmum, D. nobile var. Ballianum, D. × Juno—G. S. Ball, Esq. Odontoglossum crispum Baxteri, O. c. Augusta—T. Baxter, Esq. O. triumphans Monarch, O. t. Ladybird—Messrs. Sander & Co. Lælia × elegans Queen Empress—J. Leemann, Esq.

MEDALS.

Silver Medal, for group, to J. Leemann, Esq., and to Mr. J. Cypher.

VOTES OF THANKS.

For group, to T. Baxter, Esq.; O. O. Wrigley, Esq.; R. Ashworth, Esq.; and to Mr. A. J. Keeling. P. W.

MIDLAND AURICULA.

APRIL 25.—Birmingham appears likely to become an enterprising centre of Auricula culture, judging from the success which attended the first exhibition of this society on the above date. It took place in connection with the Exhibition of the Midland Daffodil Society in the Botanical Gardens at Edgbaston. The Auriculas came also entirely from Birmingham and neighbourhood. Messrs. B. Gordon of Manchester, and B. Simonite of Sheffield, who made the awards, brought some half-dozen between them from further north; and Messrs. Phillips and Taylor of Bracknell, were the only exhibitors from the south. Still there was enough of plants to fill a fair-sized table, and a promising commencement was thus made.

Of show Auriculas the best six came from Messrs. PHILLIPS & TAYLOR, Bracknell. Prominent were Mrs. Henwood and the Rev. F. D. Horner, green-edges, George Lightbody, grey-edge; Marmion, white-edge, and self. Mr. A. R. BROWN, Handsworth, Birmingham, was 2nd.

With four plants, Messrs. PHILLIPS & TAYLOR were again 1st; they had two capital green-edges, in Shirley Hibberd and Mrs. Henwood, with Acme, white-edge; and Miss Barnett, self. Mr. J. CLEMENTY, Harborne, was 2nd.

The best two plants brought a sharp contest, an award of two equal 1sts being made to Mr. J. STOKES, Harborne, who had green edge, John Hannaford, and Black Bess, self; and to Mr. R. HOLDING, Birmingham, who had Mars, green edge, and Heroine, self.

The best green edge was Orsian, raised and shown by Mr. B. SIMONITE, with a deep black body colour, and a singularly bright green edge; Mr. BROWN was 2nd, with Abbe Liszt.

Beauty and Colonel Champneys were the best green edges, the former shown by Mr. BROWN; Acme and George Rudd, both from the same exhibitor, were the leading white edges, Heroine and Black Bess were the best selfs.

The premier show Auricula was a good example of Mrs. Henwood, from Messrs. PHILLIPS & TAYLOR.

Auricula Auriculas were very attractive, the best six came from Mr. A. R. BROWN, his best specimens were Mrs. Martin Smith, Mrs. Gorton, and Dean Hole, gold centres; and Thetis, white centre. Messrs. PHILLIPS & TAYLOR were 2nd, they had Mrs. Gorton and Mrs. Martin Smith in fine character;

with Perfection white centre. The latter were 1st with four plants, having Gladys, Mrs. Martin Smith, a Seedling, and Perfection. Mr. A. R. BROWN was 2nd.

The best gold-centre was Twilight, a dark, shaded variety, with a brilliant gold centre, from Mr. R. GORTON. Mr. BROWN was 2nd, with J. J. Keen.

The best white-centre was Mrs. H. TURNER, from Mr. BROWN. Mr. R. HOLDING came 2nd, with Ethel.

The premier Alpine was Mrs. Martin Smith, from Messrs. PHILLIPS & TAYLOR.

It was pleasant to see a quartette of named gold-laced Polyanthus, all comparatively new. George IV., Lord Lincoln, Exile, Cheshire Favourite, and others. Where are they? Messrs. J. POPE & SON had Trilby, Tiny, and Mrs. Brownhill, black-ground; and Middleton Favourite, red-ground.

The best basket of species and varieties of Primulas came from Messrs. J. POPE & SON. It contained some fine blue Polyanthus.

MIDLAND DAFFODIL.

APRIL 25.—The spacious show house at the Edgbaston Botanical Gardens overflowed with Daffodils on the above date, and there was an excellent representation of the leading varieties, and not a few that are high-priced, and which in consequence find their way slowly into general cultivation. There were Daffodils from Ireland and Jersey; from the extreme west; from Chester and Lincoln; while the immediate district rendered a good account of itself. The background of foliage and flower provided by Mr. LATHAM set off the flowers to the best advantage.

The leading class was for fifty varieties of the Coronat sections, but excluding Narcissus tazetta, and there were six competitors. Mrs. E. O. BACKHOUSE, Sutton Court, Hereford, was 1st, with superb examples of Glory of Leyden, Weardale Perfection, Hornfield, St. John's Beauty, Monarch, aurantium, Mrs. Langtry, Duchess of Westminster, Poetum, Red Coat, Emperor, Grandee, Sir Watkin, Dorothy E. Womys, &c. Very fine also was the 2nd prize lot from Mr. P. D. WILLIAMS, Lanarth, Cornwall. 3rd, The Rev. J. JACOB, Whitechurch.

With twelve varieties of true Trumpet Daffodils (Magni coronati), Miss F. W. CURREY, Lismore, Ireland, was 1st, with magnificent examples of Weardale Perfection, P. R. Barr, Madame Plomp, Empress Victoria, Glory of Leyden, Apricot, Grandee, Madame de Graaf, J. B. M. Camm, &c. 2nd, Mr. W. J. GRANT, Bassaleg, Monmouth, his flowers also very fine. Mr. H. B. YOUNG, Lincoln, was an excellent 3rd.

With six varieties, Mr. J. A. KENRICK, Edgbaston (gr., Mr. Cryer), was 1st, with fine examples of Hornfield, Princess, Empress, Henry Irving, Emperor, and Grandee. The Rev. N. G. EVANS, Rock Vicarage, Bewdley, who had similar varieties, was placed equal 1st, the two collections came so close to each other in development.

Miss CURREY was again 1st with twelve varieties of Medio Coronati varieties, having in fine character conspicuous, Crown Prince, Gloria Mundi, Maggie May, Flora Wilson, Queen Sophia, Lulworth, Firebrand, Mrs. Langtry, and three others. Mr. H. B. YOUNG was a good 2nd, his chief varieties were Princess Mary, Duchess of Westminster, O. J. Backhouse, and Mrs. Langtry.

The only collection of six varieties came from Mr. LEONARD BROWN, Brentwood, who had in excellent character Sir Watkin, Frank Miles, conspicuous, Gwyther, Beatrice, and Mrs. Langtry.

With six varieties of Parvi Coronati, Miss CURREY was again 1st out of seven competitors: having Chaucer, Lady of the Lake, ornatus, Poetum, Beatrice Homeltime, and Cassandra; but Mr. H. B. YOUNG ran her so close that equal 1st prizes were awarded. He had Baroness Heath, Poetum, Mary, John Bain, Model, and ornatus.

Then followed two classes, severally for twelve and six varieties, in which there could only be shown flowers below a certain value. It was the means of permitting those who cannot afford the more expensive varieties opportunities for displaying what they can do with cheaper sorts.

Some special prizes given by Messrs. J. POPE & SON for a collection of varieties in the three main sections, brought several exhibitors, each having to fill a space of 18 feet. The Rev. J. JACOB was placed 1st with an interesting collection; and Mr. ISAAC COOKE, Shrewsbury, 2nd.

PLANTS IN POTS.

Daffodils grown in pots were a good feature, the pots being limited to 6 inches in diameter. Mr. J. R. KENRICK took the 1st prize with twelve pots, having well developed Emperor, Cynosure, Hornfield, Golden Spur, Leadall, amabilis, Sir Watkin, &c. Mr. ISAAC COOKE was 2nd.

There was a class for six pots also, much the same varieties being staged.

Mr. COOKE was 1st, with six pots of Polyanthus Narcissus, having well known varieties in good character; and Mr. R. SYDENHAM was 2nd.

Early single Tulips in pots were an exceptionally fine feature. The best six varieties—all finely developed—came from Mr. R. SYDENHAM, the varieties Prosperine, rectified, rose and buff, Joost Van Vondel, and its white variety, Keizer's Kroon, Fabiola, and Spandock, a novel variety, flaked rose and white. Mr. J. A. KENRICK was 2nd, having distinct from the foregoing M. Tresor, a fine yellow self, and Admiral Reinier, white, flaked with crimson.

Some excellent pots of Lily of the Valley were staged, grand Cyclamens, Lilium Harrisii, and Cinerarias; these and the Cyclamen gave brilliant patches of colour among the yellow Daffodils.

DECORATIVE CLASS.

There were several illustrations of the manner in which Daffodils can be utilised for decorative purposes. One class was for a table 6 feet by 3 feet. Messrs. J. POPE & SONS taking the 1st prize, and Mr. ISAAC COOK the 2nd.

Mr. J. A. KENRICK had the best group of spring flowers suitable for a hall or drawing-room arranged on a small round table. Here Mr. KENRICK was 1st, having Tulips, Anemones, &c., in association with Daffodils; Mr. A. T. BIRD, Moseley, was 2nd.

Charming shower bouquets of Daffodils were shown by Messrs. POPE & SONS and Mr. J. A. KENRICK, and some delightful bowls of Daffodils were also staged.

Mr. R. SYDENHAM offered special prizes for three bowls of Polyanthus, and in another class for the same number of other Daffodils, to illustrate how they can be grown in this way in the house, and the result in both cases was eminently satisfactory.

One interesting class was for a box or basket of cut blooms of Daffodils, carefully packed for transmission by rail, and which had to be sent in that way and delivered on the morning of the Exhibition. The 1st prize went to Messrs. MAUGHAN & SON, Guernsey, who had bunches of several varieties securely fastened to the bottom of a shallow wooden box, which, with its contents, arrived in a thoroughly fresh condition. Messrs. J. T. WHITE & SONS, Spakling, with a box packed in much the same way, were 2nd.

MISCELLANEOUS.

Messrs. DICKSONS LTD., Chester, BARR & SON, London, T. S. WARE, Ltd., Feltham, J. R. PEARSON & SON, Lowtham, and J. POPE & SONS all contributed comprehensive collections of Daffodils in fine character. Messrs. HONG & ROBERTSON, of Dublin, had Daffodils and a fine collection of Tulips; Mr. R. SYDENHAM had a representative collection of Narcissus and also Tulips; and Messrs. HEWITT & CO., Solihull, a collection of flowers.

FIRST FLOWER SHOW AT THE PARIS EXHIBITION.

THE first of the flower shows held at the Paris Exhibition on April 18 was a great success. The exhibits were not in a tent, but in a building more worthy of them, and that was prettily decorated in white and green. Hanging baskets were arranged on the colonnades high up, and were filled with flowers and foliage. The Managing Committee must have worked quickly, as on the evening of the 16th no beginning had been made, and the ground was not even levelled.

The exhibits sent were so numerous that it is doubtful whether the hall will be large enough for the greater numbers expected in July.

Among the Orchids were a fine set of seedling Cattalia from M. MARON, among them *Laelio-Cattleya* x *Imperatrice de Russie*, L. x *callistoglossa*, and L. x *highburyensis*.

Other fine Orchids were shown by M. BERANEK, notably *Phalax* x *Cooksonii* and P. x *Normani*; *Odontoglossum luteo-purpureum* with a splendid raceme; *Dendrobium nobile* *Cooksonianum*, D. *Phalenopsis*, D. *Brymerianum*, and others. M. Rénier sent *Vanda coccineus*, *Phalenopsis* and *Cypripedium*; MM. Cappe et fils, a fine *Cattleya Mendellii*; and M. Dallé and M. Magne various good specimens.

Besides the Orchids there were fine masses of ornamental plants, prominent among them were Palms from MM. Delavie et Chantlin, Lilacs from MM. Boucher et Croux, charming flowering shrubs from M. Croux; bulbous plants, alpine plants, a collection of Primroses and Cinerarias from MM. Vilmorin, Andrieux et Cie.; bulbous plants from MM. Thibaut-Legendre and Emile Thibaut; some fine *Bougainvillea glabra* from M. Nonin; variegated plants from M. Salier; *Amaryllis* from M. Féard; Carnations from M. Kacica; *Anthuriums*, *Dracena* *Sanderiana* and *Bromeliads* from MM. Duval et fils; Cacti from M. Simon; Roses from MM. Leveque; Lilacs and Violets from M. Millet, and some excellent fruit and vegetables. C. T. G.

MISCELLANEOUS SOCIETIES.

Bristol and District Gardeners'.—The second annual meeting of the Association was held at St. John's Parish Room, Bristol, on Thursday, April 26, Mr. G. BACON presiding. The report presented showed that the Society is progressing, the present total membership being 129, with an average attendance of about 60. The financial statement was also satisfactory, the balance in hand after all expenses were paid being £5 2s. 3d.

Isle of Wight Horticultural Improvement.—The monthly meeting of this Association was held at the Institution on the 28th ult. Dr. J. GROVES presided over a moderate attendance of members. Mr. J. G. WALKER read a paper on the "Vine."

On the 25th the Royal Horticultural Society's examination was held at Cowes, when several members presented themselves for examination. The candidates have been assisted in their studies by Mr. S. HEATON, horticultural instructor in the county.

Shirley and Districts Gardeners' and Amateurs' Mutual Improvement.—The monthly meeting was held on Monday, 23rd ult. Mr. B. LADHAMS presided over a good attendance. Mr. JESSE JONES, of the Gardens, Terrace House, Southampton, gave a lecture on "The Cultivation of Vegetables," more especially dealing with varieties suitable for early forcing; and illustrated his remarks with some very fine samples of *Seakale*, *Rhubarb*, *Peas*, *Beans*, *Cucumbers*, &c.

Mr. Jones also exhibited an Onion named *Al*, sown on August 28, 1898, thus showing its good keeping qualities. Mr. H. WRIGHT, gr. to Mrs. Austen Smith, Crabwood, Southampton, showed excellent specimens of *Cineraria stellata*. Mr. B. LADHAMS, of the Shirley Nurseries, had a magnificent display of cut blooms of *Narcissus* and flowering shrubs.

Beckenham Horticultural.—The subject of "Edible Stem Plants," was brought before a meeting of the above society on Friday, April 27, by Mr. DEAN. Much useful information was given respecting these important winter vegetables, especially *Asparagus*, *Seakale*, *Rhubarb*, *Celery*, *Leeks*, *Cardoons*, &c. The new variety of *Rhubarb*, known as "Dawes' Champion," Mr. DEAN described as of great value. It was recommended to increase the stock of *Asparagus* by raising plants annually from selected seed. The various methods of forcing vegetables adopted by large growers was carefully described.

Chester Paxton.—The members of this Society are to be congratulated upon the excellent display of spring flowers, which they made at the Grosvenor Museum on the 26th ult. An exhibit which occupied the most prominent position was one sent by Dr. MILES, The Old Parsonage, Gresford, who is one of the most successful cultivators of hardy spring flowers in the Society's district. This exhibit consisted of new and rare species of hardy Primulas, single and double-flowered Primroses, as well as a large collection of choice Daffodils. Exceedingly effective was a vase containing a dozen blooms of *Narcissus Madame de Graaf*, which attracted much attention. Close by, in another vase, was the same number of blooms of *N. Virgin Mary*, a valuable variety, the stock of which, we believe, is in the hands of the Doctor. *Primula viscosa purpurea*, var. *coccinea* (Backhouse), and *P. viscosa muralis*, were very fine. An exhibit from the Eaton Gardens, the Duke of Westminster's residence, although of a different nature, was equally attractive to the public, and reflected great credit upon the gardener, Mr. N. F. BARNES. Noteworthy were some beautiful specimens of hybrid *Azaleas*, in various shades of colour; *Cineraria stellata*, *Azaleas*, several varieties of *Schizanthus*, *Lilacs*, *Cheshunt Hybrid* and *William Allen Richardson* *Roses*, as well as several choice varieties of *Narcissus*, *Tulips*, *Polyanthus*, blue *Primroses*, and other outdoor spring flowers. Miss Humberston, Newton Hall, per Mr. B. WAKEFIELD, sent an interesting collection of well grown specimens of Daffodils, *Hyacinths*, *Tulips*, *Primroses*, *Muscarias*, &c. Other exhibitors included Mr. JOHN WYNE, Waverton; Mr. J. GIBSON, Glan Aber Park; and Messrs. DICKSONS, whose collection of *Narcissus* blooms was much admired.

ENQUIRY.

PROTECTION OF TREES AGAINST HORSES.—A correspondent (Mr. Jas. Gibson) would be glad if some of our readers would kindly inform him through our columns if there are any means of preventing horses nibbling the bark of Elm and Lime-trees? He has tree-guards 6 feet high, but still the horses reach the branches. It is an avenue-plantation of some hundreds of trees. Smearing with Stockholm-tar has failed to prevent injury, although it lessened it.

THE WEATHER.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period April 22 to April 28, 1900. Height above sea-level 24 feet.

1900.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				TEMPERATURE OF THE SOIL AT 9 A.M.			
		AT 9 A.M.		DAY.		AT 1-foot deep.		AT 4-foot deep.	
		Dry Bulb.	Wet Bulb.	Highest.	Lowest.	At 1-foot deep.	At 2-foot deep.	At 4-foot deep.	LOWEST TEMPERATURE OF GRAZING.
SUN. 22	S.S.W.	60.1	52.8	73.4	41.2	51.0	40.1	46.5	32.7
MON. 23	N.N.E.	49.0	46.1	62.3	45.3	58.2	49.8	46.9	44.8
TUE. 24	E.S.E.	51.6	46.8	61.8	39.6	59.6	50.8	47.1	31.6
WED. 25	E.N.E.	45.1	44.4	47.1	43.8	51.9	50.8	47.5	34.9
THU. 26	E.N.E.	42.8	37.5	51.0	29.2	47.6	49.7	47.8	17.6
FRI. 27	W.N.W.	47.1	48.4	50.7	31.3	46.6	48.7	47.8	22.1
SAT. 28	E.N.E.	42.1	57.5	58.5	40.2	47.2	45.1	47.8	34.8
MEANS...	...	48.3	44.1	57.0	38.6	50.1	49.4	47.8	31.2

Remarks.—The weather for the past week has been fine but very dull, with cold wind.

MARKETS.

COVENT GARDEN, MAY 3.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

OUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

s. d. s. d.		s. d. s. d.	
<i>Asparagus "Fern,"</i>	2 0 2 6	<i>Narcissus, Phœ-</i>	2 6 3 6
<i>bunch</i> ...	...	<i>sant's Eye, doz. bun.</i>	...
<i>Carnations, per doz.</i>	1 6 2 6	<i>Odontoglossum, per</i>	4 6 9 8
<i>blooms</i> ...	...	<i>dozen</i> ...	...
<i>Cattleyas, per dozen</i>	12 6 15 0	<i>Roses, Red, per doz.</i>	3 0 5 0
<i>Bucharis, per dozen</i>	3 0 5 0	<i>— Tea, white, doz.</i>	2 6 4 6
<i>Gardenias, per doz.</i>	1 6 3 0	<i>— Yellow, Pæbles,</i>	2 6 8 6
<i>Lilac, white, bunch</i>	3 6 6 0	<i>per doz.</i> ...	...
<i>— mauve, bunch...</i>	6 0 —	<i>— Safrano, per doz.</i>	2 0 3 0
<i>Lilium Harrisii, per</i>	4 0 6 0	<i>— Maréchal Niel,</i>	6 0 10 0
<i>dozen blooms</i> ...	...	<i>per doz.</i> ...	...
<i>Lilium longiflorum,</i>	6 0 8 0	<i>— Catherine Mer-</i>	4 0 6 0
<i>per dozen</i> ...	...	<i>met, per dozen</i>	4 0 5 0
<i>Lily of Valley, per</i>	8 0 12 0	<i>Smilax, per bunch</i>	4 0 5 0
<i>doz. bunches</i> ...	...	<i>Tuberose, per doz.</i>	0 6 1 0
<i>Maidenhair Fern,</i>	6 0 8 0	<i>blooms...</i>	...
<i>per doz. bunches</i>	...	<i>Tulips per bunch</i>	0 8 1 6
<i>Marguerites, p. doz.</i>	8 0 —	<i>Violets, Parma, bun.</i>	8 0 5 0
<i>bunches</i> ...	...	<i>— dark (French),</i>	1 0 3 0
<i>Mignonette, per doz.</i>	4 0 6 0	<i>per doz. bunches</i>	1 0 2 0
<i>bunches</i> ...	...	<i>— English, 12 bun.</i>	1 0 2 0

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.		s. d. s. d.	
<i>Apples, Nova Scotia,</i>	16 0 22 0	<i>Grapes, Hamburgh,</i>	4 0 5 0
<i>Nonpareil,</i>	...	<i>new, per lb.</i> ...	...
<i>per barrel</i> ...	...	<i>— Muscats, new,</i>	10 0 —
<i>— Tasmanian (var-</i>	10 0 14 0	<i>per lb.</i> ...	...
<i>ious sorts)</i>	...	<i>— Almetra, per</i>	8 0 12 0
<i>case</i> ...	...	<i>dozen lb.</i> ...	...
<i>Apples, Victorian,</i>	12 6 18 0	<i>Melons, each</i> ...	3 0 4 0
<i>cases</i> ...	...	<i>Peaches, per dozen</i>	36 0 —
<i>Bananas, bunch</i> ...	8 0 12 0	<i>Strawberries, per lb.</i>	4 0 —
<i>Cherries, per box</i> ...	1 6 —	<i>Class A.</i> ...	2 0 —
<i>Figs (New), p. doz.</i>	4 0 9 0	<i>Class B.</i> ...	2 0 —

VEGETABLES.—AVERAGE WHOLESALE PRICES.

s. d. s. d.		s. d. s. d.	
<i>Artichokes, Globe,</i>	2 0 —	<i>Mint, new, p. doz.</i>	4 0 —
<i>per doz.</i> ...	...	<i>bunches</i> ...	...
<i>— Jerusalem, per</i>	1 0 —	<i>Mushrooms, house,</i>	0 10 —
<i>sieve</i> ...	...	<i>per lb.</i> ...	...
<i>Asparagus, Sprue,</i>	0 6 —	<i>Onions, picklers,</i>	4 0 —
<i>per bundle</i> ...	...	<i>per sieve</i> ...	...
<i>— English, natural</i>	5 0 —	<i>— Valencia, cases</i>	10 0 11 0
<i>— Giant, bundle.</i>	4 0 5 0	<i>— English, cwt.</i>	6 0 —
<i>— Montauban</i> ...	2 6 —	<i>— Egyptian, per</i>	6 6 —
<i>— Perpignon</i> ...	0 10 —	<i>cwt.</i> ...	...
<i>— Spanish, bndl.</i>	1 2 —	<i>— Parsley, 12 bunches</i>	2 0 3 0
<i>— Toulouse</i> ...	1 6 1 9	<i>per sieve</i> ...	1 0 1 6
<i>Beans, Channel</i>	0 8 0 0	<i>Peas, French, per</i>	0 3 0 4
<i>Islands, per lb.</i>	2 0 3 0	<i>lb. pkt.</i> ...	...
<i>— Madeira, basket</i>	0 4 0 6	<i>— Flats</i> ...	4 0 4 6
<i>— French, packets</i>	...	<i>— Jersey, forced</i>	0 4 0 9
<i>per lb.</i> ...	...	<i>per lb.</i> ...	...
<i>— Broad, or</i>	3 0 3 6	<i>Potatoes, New</i>	0 4 1 —
<i>Longpods, in</i>	...	<i>Channel Is-</i>	...
<i>flats</i> ...	...	<i>lands, frames,</i>	...
<i>— English "Dwl."</i>	6 6 0 9	<i>per lb.</i> ...	...
<i>per lb.</i> ...	...	<i>— Tenerife, in</i>	14 0 18 0
<i>Beetroots, per dozen</i>	2 0 —	<i>boxes, cwt.</i> ...	...
<i>per bush</i> ...	...	<i>— French Kids, in</i>	18 0 30 0
<i>Broccoli, Cornish,</i>	8 0 10 0	<i>boxes, per lb.</i>	0 2 1 —
<i>per crate</i> ...	...	<i>— per cwt.</i> ...	...
<i>Cabbage, tally</i> ...	7 0 8 0	<i>Radishes, Long, doz.</i>	0 6 0 9
<i>— dozen</i> ...	1 6 —	<i>bunches</i> ...	...
<i>Carrots, English, p.</i>	3 0 4 0	<i>— round, doz.</i>	0 3 0 9
<i>dozen bunches</i>	...	<i>Rhubarb, home</i>	1 6 2 6
<i>— cwt. bags</i> ...	4 0 5 0	<i>grown, natural,</i>	...
<i>— French, small</i>	5 0 6 0	<i>per doz. bundles</i>	...
<i>— new, bunch.</i>	1 6 1 9	<i>— Yorks</i> ...	0 6 0 9
<i>Cauliflowers, per</i>	1 0 2 0	<i>Salad, small, pun-</i>	1 3 —
<i>dozen</i> ...	...	<i>nets, per dozen</i>	...
<i>— Cornish crater.</i>	8 11 0	<i>Salady, bundle</i> ...	0 5 —
<i>Chicory, per lb.</i>	0 2 1 —	<i>Seakale, natural,</i>	6 0 —
<i>Cress, doz. punnets</i>	1 6 —	<i>per dozen</i> ...	...
<i>Cucumbers, doz.</i>	8 0 4 0	<i>Shallots, per lb.</i>	0 8 —
<i>Endive, new French,</i>	1 6 —	<i>Spinach, Winter,</i>	...
<i>per dozen</i> ...	...	<i>small leaf, per</i>	...
<i>Garlic, per lb.</i>	0 8 —	<i>bushel</i> ...	2 6 —
<i>Horseradish, Eng-</i>	1 6 2 0	<i>Tomatoes, Cahiry,</i>	3 0 4 0
<i>lish, bundle</i> ...	...	<i>deep</i> ...	...
<i>— foreign, per</i>	1 0 1 2	<i>— English, new,</i>	1 0 1 3
<i>bundle</i> ...	...	<i>per lb.</i> ...	...
<i>— loose, per doz.</i>	1 6 —	<i>Turnips, per dozen</i>	2 0 2 6
<i>Leeks, p. doz. bunches</i>	2 0 —	<i>bunches</i> ...	...
<i>Lettuce, French,</i>	1 3 —	<i>— cwt. bags</i> ...	2 0 3 0
<i>Cabbage, dozen</i>	...	<i>— new French, per</i>	0 7 —
<i>— French Cos</i>	8 0 4 0	<i>bunch</i> ...	...
<i>(good), per doz.</i>	...	<i>Watercress, p. doz.</i>	0 4 0 6

REMARKS.—*Asparagus* in variety now coming in, and prices vary according to size of bundle, which varies in every district. Forced *Seakale* is past.

POTATOES.

Main Crop, and Up-to-Date, &c., 75s. to 100s.; *Dunbars*, 105s. to 110s.; other varieties, 70s. to 95s.; Seed Potatoes from 4s. 6d. to 7s., in great variety, per cwt. *Belgian* and *German*, various, in bags, 8s. 9d. to 4s. 6d. *John Bull*, 32 s. 34, *Wellington Street*, *Covent Garden*.

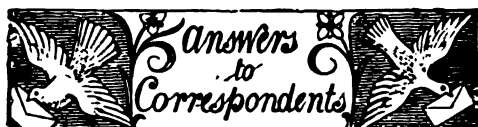
PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Acacias, per dozen	12 0-18 0	Ferns, in variety,	4 0-18 0
Adiantum, p. doz.	5 0-7 0	per dozen	1 6-7 6
Arbor-vita, var. doz.	6 0-36 0	Ficus elastica, each	1 0-5 0
Aspidistra, p. doz.	12 0-30 0	Foliage plants, var.,	1 0-5 0
— specimen, each	5 0-10 6	each	6 0-9 0
Cactuses, per doz.	18 0-30 0	Genistas, per doz.	1 0-3 0
Cyclamen, per doz.	8 0-10 0	Lily of Valley, each	1 0-3 0
Dracenas, var., doz.	12 0-30 0	Lycopodium, doz.	8 0-4 0
— viridia, per doz.	9 0-18 0	Marguerite Daisies,	8 0-12 0
Dutch Hyacinths,	per doz.	Myrtles, per dozen	6 0-9 0
Erica, var., per doz.	12 0-36 0	Palms, various, ea.	1 0-15 0
Eucynema, various,	per dozen	— specimens, each	21 0-68 0
Evergreen, var.,	per doz.	Pelargoniums, scar-	8 0-12 0
Ferns, small, per 100	4 0-6 0	let, per dozen	5 0-8 0
		Primulas, per doz.	1 6-2 6
		Tulips, per doz.	1 6-2 6

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending April 28, and for the corresponding period of 1899, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1899.	1900.	Difference.
	s. d.	s. d.	s. d.
Wheat	25 0	26 0	+ 1 0
Barley	25 10	26 2	- 0 8
Oats	17 5	17 11	+ 0 6



* * We are obliged to omit this week many letters upon the subject of the ROYAL HORTICULTURAL SOCIETY.

ANTS IN PEACH-HOUSES: *South Coast.* The Ballin-kirrain Ant Destroyer, made by Messrs. Alexander Cross & Sons, Ltd., 19, Hope Street, Glasgow, is said to be a very efficient article. May be obtained retail of the horticultural sundriesmen.

BOOKS: *Alpha.* Kemp's *How to lay out a Garden*: published by Messrs. Bradbury, Agnew & Co., Ltd., Bouverie Street, Whitefriars, E.C.

BOWLING GREENS: *James Reald.* We would refer you to the full directions for making these, given in our issue for September 2, 1899, which can be purchased of the publisher of the *Gardeners' Chronicle*, for 3½d., post free.

CATAWBA GRAPE: *South Coast.* This is a favourite American variety; glutinous, sweet and juicy, and a good cropper, with a "foxy" flavour that is not much appreciated here. Vines are increased by layers, eyes, and cuttings. You may be able to obtain it at some of the best nurseries. It would scarcely ripen its fruits on a south wall in this country excepting in very hot summers.

CORRECTION—METFORD'S LEMON (see p. 267, fig. 86). It should not have been stated that this illustration was "natural size," and the following explanations should have been given in the legend:—A, fruit, reduced ½; B, twig, showing small spines and slightly winged leaf-stalks, reduced ½; C, reduced sketch, showing pair of fruits as produced at Kew; D, ordinary Lemon for comparison, reduced ½. Apropos of this illustration it should be pointed out that what is usually termed half natural size in a reduced picture is really only a quarter natural size, on the principle that an area of 4 square feet, if reduced to half its length and width, contains only 1 square foot. A friend, on seeing the picture of the Lemon in the *Gardeners' Chronicle*, after having seen the fruit it represented, ridiculed the statement that the former was half the size of the latter. In these matters half is only a quarter, and a quarter is only a sixteenth! The measurements in the text were correct, and the ½ in the legend showed the real state of the case.

DOUBLE-FLOWED AZALEA: *E. A. O. S.* Apparently it is one of the varieties obtained by Mr. Carmichael many years ago by crossing *A. amona* and *A. obtusa*.

ENGLER & PRANTL: *Nicois; Pflanzenfamilien.* The publisher is Mr. W. Engelmann of Leipzig. The

recent publication of the *Index* renders these elaborate volumes much more easy to consult.

EUCALYPTUS GLOBULUS: *J. Voss.* Your plant is very precocious in flowering in its second year. We have often had flowers and seed-vessels sent us by correspondents resident in the warmer parts of the country.

FANCY AND SHOW PELARGONIUMS: *J. G.* Of course, these plants can be raised from cuttings nine months in the year, but the almost matured shoots, and the lower parts of these, make the best cuttings. Strike them singly in 60's in sandy loam, in a warm part of the greenhouse, as for example, a front shelf, not affording much water till rooted.

GARDENERS IN U.S.A.: Dissatisfied. We would advise you to make enquiries at the Office for Emigration, Broadway, Westminster, the officials there having fuller information on all such matters than we can possibly obtain. Money Orders payable in the U.S.A. are issued here. An American U.S.A. dollar is worth 4s. 2½d., and 100 cents are reckoned to this coin, so that the value is about that of a half-penny, English.

HYACINTH: *C. S. & Co.* A curious reversion, but of no value.

LARGE TROPICAL SEEDS IN FLAT PODS: *T. V.* The seeds of *Entada scandens*, which are sometimes washed up on our Western coasts. In the West Indies the pod is used as a door-knocker.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*Young Gardener.* 1 *Rhamnus Alaternus*; 2 *Forsythia suspensa*.—*H. J. Ross.* *Rhodotypos Kerrioides*.—*A Reader.* *Prunus triloba*.—*Jas. S.* *Forsythia suspensa*.—*F. B.* *Amelanchier vulgaris*.—*D. M.* 1, *Saxifraga crassifolia*; 2, *Doronicum plantaginifolium*; 3, *Leucojum aestivum*; 4, *Anemone fulgens*; 5, not found; 6, *Muscari botryoides*; 7, not found; 8, *Dielytra formosa*.—*R. E.* *Bristol.* *Dendrobium Findlayianum*, an exceptionally large and distinct form. *W. H. D.* 1, *Citrus nobilis*; 2, *Citrus medica*; 3, *Citrus decumana*; 4, *Begonia argentea*; 5, *Eriobotrya japonica* (Loquat); 6, *Metrosideros floribunda* (Bottle-brush).—*T. F. B.* *Fritillaria Meleagris*, variety.—*A. J. R.* 1, *Dendrobium suavisimum*; 2, *Dendrobium chrysanthum*; 3, *D. aggregatum*; 4, *Begonia subpeltata nigro-rubra*. It is impossible for us to name hybrids of the B. Rex class. The seed-ovaries of *Dendrobium* will take several months to ripen.—*A. & A.* Probably *Leucothoe axillaris* var. *longifolia* alias *Andromeda longifolia*.—*J. A.* 1, *Erythronium dens-canis*; 2, *Pulmonaria officinalis*.—*J. J. F.* 1, *Magnolia Soulangiana*, propagated by layers; 2, *Erica carnea*; 3, Vine leaves; we find no insects or fungi; send a portion of the roots.—*M. C.*, *Rothsay.* *Hippeastrum marginatum venustum*, more often called in gardens *Amaryllis marginata venusta*, or the nearest approach to the old form which garden-raised seedlings can give.—*C. B.* 1, *Galium Aparine*; 2, we do not recognise; neither is *Tarragon*, neither is *Forget-me-Not*.—*Pretoria.* The *Dendrobium*, the labellum of which had withered, is probably *D. suavisimum*. In sending flowers of these single yellow *Dendrobiums*, some guide would be given if it was stated whether the inflorescence bore many or few flowers; 2, *Leucojum aestivum*; 3, *Corydalis lutea*; 4, *Forsythia suspensa*; 5, Vine leaves show decay, in consequence of something unsuitable either in the house or the management; 6, *Picea excelsa*, common Spruce.—*J. O.* *Tulipa precox*.

PEACH-LEAVES: *M. B.* The silver-leaf disease, for which there is no known cure. Cut out the affected branches, and feed the tree with liquid-manure occasionally.

RHODODENDRON LEAVES INJURED: *Ignoramus.* There is nothing to show what has caused the injury to the leaves sent. We should imagine it to be due to frost, especially if certain varieties have suffered more than others. Is your land of a very light nature, and did the plants have sufficient moisture during the severe drought of last season?

ROYAL HORTICULTURAL SOCIETY: *A. J. B.* The advantages are well worth the amount of the annual subscription, a few of which we may mention here applicable to Fellows subscribing

1 guinea, viz., one transferable ticket; to attend and vote at all meetings of the Society; the use of the Lindley Library; to receive a copy of the Society's *Journal*; to purchase at reduced rates such fruit as is not required for experimental purposes at Chiswick; to share in the annual distribution of plants; to obtain, subject to limitations, analyses of soils, manures, &c.; and several more minor privileges.

ROYAL SOVEREIGN STRAWBERRY-PLANTS DYING-OFF IN POTS: *T. W. O.* There is nothing in the appearance of the plants sent to account for their death, and we should attribute it to the application of some deleterious substance, inadvertently used or otherwise. The injury shows itself just above and below the ground line, the root-stock being quite dead.

SAND: *H. B.* The sample sent is good enough for nearly every gardening purpose, excepting perhaps the propagation of hard-wood plants, for which it should be washed in running water, in order to deprive it of the loam with which it is slightly mixed.

SEAKALE: *A. E. M.* A very superior sample, which shows that the cultivation of the plant is well understood at the Hadleigh Colony of the Salvation Army, and the suitability of the soil of the farm for Seakale-culture.

TULIP: *W. H., and E. St. J. Tucker.* Fasciation and the production of three flowers is not very uncommon.

VINERY FACING WEST: *Alpha.* All varieties not requiring a very long season to ripen their fruit would succeed in such a vinery, if started a month or six weeks before their natural season for starting into growth, including *Muscot* of Alexandria, *Muscot* of Hungary, *Trebbiano*, *West's St. Peter's*, *White Frontignan*, *White Tokay*, *Black Hamburg*, *Madresfield Court*, and *Lady Downes' Seedling*. *Mrs. Pince*, *Gros Colmar*, *Gros Maroc*, or other varieties requiring a long season of growth and a very warm border, should not be planted.

VINE-SHOOTS INJURED: *A. L.* We are unable to decide. Please send better specimens.

VINES DISEASED: *W. Cresswell.* See reply in our issue for April 21, 1900.

VINES UNHEALTHY: *Gardener, Farnham.* Nothing the matter, beyond improper conditions in the vinery or vine-border. Only a person on the spot and one acquainted with the methods of cultivation pursued, can tell you in what particular point your practice is wrong.

ZONAL PELARGONIUMS TO BLOOM IN THE WINTER: *J. G.* In order to have plants of serviceable size for flowering in the winter, the cuttings should be taken in July and August, and consist of nearly-matured shoots. They may be struck singly in pots filled with sandy loam, or several may be placed in a 48, dividing them when rooted, and potting them off. Such plants, if kept gently moving during the winter in a light house having an intermediate temperature, will be in fit condition in the early spring to be re-potted, and grown on rather more rapidly. The plants should not be allowed to flower till such time as they are actually required to do so in the winter. The young plants should be kept in cold frames or pits fully exposed to the sun during the months of June, July, August, and September, not coddling them in any way. The points of the shoots may be stopped twice during early summer. Keep them close to the glass, do not afford shade, nor afford large shifts, but keep them in health and vigour by manure-water.

COMMUNICATIONS RECEIVED.—*J. C.*—*H. T.*—*E. C.*—*Burnley*—*W. P.*—*G. S.*—*A. G. T.*—*H. K.*—*A. R. P.*—*Nies*—*J. C.*—*Spencer Moore*—*D. D.*—*J. R. S.*—*J. B.*—*M. W. T.*—*M'Grignan*—*W. R.*—*T. V.*—*G. de A.*—*Col. T.*—*Messrs. Blackie & Co.*—*W. S.*—*Major B.*—*E. H.*—*Cork*—*C. W. D.*—*L. C.*—*A. Batt*—*H. R.*—*H. G. F.*—*Dr. W. Schlich*—*W. H. A.*—*H. P. D.*—*A. D.*—*D. T. F.*—*E. C.*—*E. J.*—*D. McD.*—*G. B. M.*—*E. M.*—*E. B.*—*J. G. W.*—*J. C.*—*Oxon*—*A. O. W.*—*D. R. W.*—*J. C.*—*A. O'N.*—*A. E. M.*

SPECIMEN PHOTOGRAPHS, &c., RECEIVED WITH THANKS.—*Justus Corderoy*—*J. E. J.*—*Sir C. S.*

Advertisements are reviewed that the "Chronicle" circulates among GENTLEMEN, AND ALL CLASSES OF GARDENERS' AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is reserved for reference in all the principal Libraries.

THE Gardeners' Chronicle

No. 698.—SATURDAY, MAY 12, 1900.

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THE ROYAL ACADEMY.

THIS annual exhibition of pictures and sculpture was opened to the public on Monday last; it displays the usual number of historical pictures and portraits, mythological and allegorical subjects, landscapes and garden views, and groups of flowers and fruit. The figure subjects and sculpture are beyond the province of the *Gardeners' Chronicle*, full descriptions of these will take a leading place in the daily newspapers and weekly reviews. The better landscapes are usually in good positions for observation, but the reverse must be said to be of the flower subjects. Some of these are close to the floor, and can only be seen after painful stooping; others are as high up as the limits of the room will admit, so that it is at times almost impossible to know what blooms are painted. As for the manner of painting, an expression of opinion is impossible. It is by no means easy to see the numbers of some of the more elevated examples, in certain cases we could not see the numbers or find the pictures in the catalogue. We do not complain of the elevation, perhaps some of the subjects are better removed from a too close scrutiny; we should perhaps feel indebted to the hanging committee for possibly saving us from painful sensations. Certain pictures of flowers obviously have a far better chance of acceptance than others, ordinary oblong pictures probably suffer in the severe struggle for existence, or rather exhibition. The man who paints a life-size vertical Bulrush has a good chance for acceptance, as his picture will nicely fill a vertical vacant space by the side of some huge canvas near a door; failing a vertical effort, he

should try a horizontal, and paint a Bulrush, or something of the kind, lying sideways; this, naturally enough, finds a place on the top of or between two large canvases, and conveniently hides some discoloured patch of wall space. Flower-painters are an inoffensive race; they should not be laughed at too much, although it is sometimes difficult to keep one's temper unruffled before the little conventional attempts at Primroses and Ivy-leaves, with a red-cheeked Apple and snail (*Helix hortensis*) thrown in.

Of the landscapes, the three pictures by Alfred Parsons, A.R.A., are superb; to see them is worth a visit to Burlington House. The first is 43, "The Green Punt," named after a green boat in deep-rippled water, bounded in the middle distance by Willows, and in the foreground by *Epilobium*, and other water-loving plants; all painted with the greatest possible skill. If possible, a still more admirable production is the same artist's 86, "Rain in Spring," a second landscape with water, a showery sky, rainbow, and an approaching, distant, threatening storm, reflected in the water. In 4, "Getting up Sheaves" (George Clausen, A.R.A.), we have a small but admirably painted picture of a harvest-field with sunburnt labourers toiling at sheaves. In the picture 26, named "A Morning Drink," we get leopards lapping at a pool where blue *Nymphaeas* are growing in profusion in the foreground. Returning to landscapes, a masterpiece is seen: 49, "To Valley Pastures" (Peter Graham, R.A.), a mountainous landscape, with a valley pasture in the foreground, and mountains half hidden in sun-illuminated mist in the middle distance. A landscape with a brook, well illustrating early summer, is seen in 97, "Summer in the English West" (John W. North, A.). Mr. J. E. Christie's "Pixies Ring" is too high to be clearly visible; it portrays children in a woody place where certain fungi are growing, apparently *Agaricus procerus* and *Russula rubra*, the latter fungus gives a good opportunity for the introduction of patches of scarlet, but we do not remember ever seeing it in "Pixies Ring," in the somewhat strange company of procerus. Of fruit, a well executed picture of Michaelmas Damsons, Apples, and Barberries, is seen in 108, "Fresh Gathered," by William Hughes. A famous flower painter, H. Fantin-Latour, sends a picture of double Larkspurs, low in colour and ill-defined, in 135, "Pieds d'Alouette." In 242, "Chinese Lanterns," Catherine M. Wood, we have a good illustration of Francheti "Physalis"; advantage being taken of the inflated calyx in its green, orange, and scarlet stages, so giving a pretty diversity of bright colour. Mr. W. Dendy Sadler exhibits under the name of "The Awakening" (a not very obvious explanation of his picture), two lovers and a gardener in a greenhouse with *Petunias* and an abundance of Canterbury Bells; we do not remember having seen Canterbury Bells extensively grown in greenhouses, but even "eminent horticulturists" don't know everything. A well and powerfully painted picture of fruit is seen in 321, "A Study of Fruit," by Amy C. Warne, a brilliant picture of Pomegranates, Oranges, and Bananas. Mr. Joseph Farquharson sends a carefully studied picture of a wintry landscape in 339—"And all the air a solemn silence holds." A group of "Wild Roses" by A. Miles Albert, is given in 417: we confess to not appreciating it at all, and to having strong objections to the uniform black background. Fields of Wallflowers are skilfully painted in 438, "A Garden of Lyonesse" (Gilbert Foster); and close by, in 439, "Spring's Delights," by R. Vicat Cole, we have one of this admirable artist's best works, with Bluebells, Hyacinths, and Violets in the foreground. "The Flower Markets in Paris: Sunlight and Shadow" (477), by Stuart Hobkirk, is a curious study of bright patches of sunlight and deep shade in a flower-market. 523, "White Peonies" (Janetta R. A. Pitman), and 529 "Peonies" (Emily Duncan), are both near the ceiling. We unfortunately left our opera-glasses in the country, so can say very little of these

works; they do not impress us as representations of the productions of the Messrs. Kelway. In 561, "Poppies" (E. Margaret Woolhouse), we have a group of Shirley Poppies in a vase. In the catalogue we noted 566 "Iris" (Adeline Trier), but we had a difficulty in finding it, owing to its possible height, or to a defect either in the tickets or in our indifferent eyes. We took some dark purple Larkspurs to represent "Iris," but we were no doubt wrong, and our confusion was emphasised by some ladies close by talking in a loud voice about "engaging a cook with great experience." In this room (at 610) we are treated at the very top of the room to a subject strangely called "Cape Goosebellies!" We failed to make out any definite representation of abdominal goose-life. 640 represents "Sweet Peas (Lydia B. Mathews); these would certainly not receive a First-class Certificate from the Royal Horticultural Society. In Galleries No. viii., ix., x., and xi. are many studies of flowers of different degrees of merit and demerit; some are carefully painted, others are rough suggestions or impressions, quickly and sometimes skilfully knocked off; but old stagers, like the writer, shudder at "suggestions," and prefer to see a little evidence of drawing as well as painting. In 728, "Voices of the Spring (Emma Shepherd), the Violets are undeniably well done, brilliant and life-like, but what we call impressions or suggestions. There are far too many small pictures of flowers in the four latter galleries for individual mention or criticism in this paper. Such of our readers as are interested must go and see them for themselves. In 651, Emily Stanton, we have "Mushrooms," a pretty group of Mushrooms on grass, some growing, others upside down close by. We have seen inverted and uninverted Mushrooms on the Academy walls for half a century; the apparition of the last group, well painted we admit, was too painful, and made us run, especially as we were further irritated by the representatives of "dresses at the Academy" talking about how long they were going to remain in town; and then how other dresses were going to meet still other dresses at "Venice in the autumn." W. G. S.

NEW OR NOTEWORTHY PLANTS.

CYPRIPEDIUM × SIR GEORGE WHITE (Boxalli × Stonei).

A SUFFICIENTLY pretty and distinct hybrid has been raised by Drewett O. Drewett, Esq., Riding Mill-on-Tyne (gr. Mr. Etty), between *C. Boxalli* and *C. Stonei*, and it was shown at the last meeting of the Manchester and North of England Orchid Society under the above name. Both the parents are to be seen in the hybrid in a more than usually marked degree, both the foliage and the flower in all its parts being a combination of the parents. The leaves are bright green, larger and harder than those of *C. Boxalli*. The inflorescence bears two flowers borne on purple hairy stalks, the base of each being furnished with a pale green bract spotted with purple; the ovaries are yellowish with purple ridges. The upper sepal of the flower, which reflexes on each side, is about 2½ inches high, pale green, with a white margin, the surface being heavily marked with irregular, blotched, purple lines of unequal length. The lower sepals are large, and of a greenish-white colour, with a few indistinct purple lines. Petals extending, each about 4 inches in length, and nearly 1 inch across at the widest, yellowish, with shining purple lines and veining. Sepals and petals having the purple colour displayed on the outside. Lip conspicuous, showing the fold on the under side peculiar to *C. Stonei*, whitish, with rose-coloured markings on the face. Staminate formed somewhat like that of *C. Boxalli*, but with a change towards the hairy, cushion-like form of staminate seen in *C. Stonei*. It is a striking flower, comparable with, but distinct from the *C. × Boxallo-Rothschildianum* of Norman C. Cookson, Esq. James O'Brien.

A GOOSEBERRY AND CURRANT DISEASE.

(*PLOWRIGHTIA RIBESIA*, Sacc.)

THIS fungus, sometimes called *Scleroderma ribesia* (Pers.), is not by any means rare on the branches of Gooseberry, Red and Black Currant, where it forms rather large, wart-like, black bodies bursting transversely through the bark, as shown in the illustration (fig. 92). It has for a long time been noticed in scientific works, under one name or another, and must be quite well known to gardeners. Quite recently it has also been mentioned in books treating on plant-diseases up to the present, accompanied by the remark that its parasitic nature has not been demonstrated, which only means that, for some reason or other, no one had attempted the experiment.

Last year I received a large amount of diseased Gooseberry branches, and took the opportunity of infecting two healthy young plants, one Gooseberry, and one Red Currant, by introducing spores into minute incisions made in the bark. After an interval of seven weeks the infected parts looked dry and shrivelled, and within three months the black spore-bearing warts of the fungus burst through the bark, extending for about an inch above and below the point of inoculation. Several attempts to inoculate by placing germinating spores on the uninjured young bark produced no result, showing that the parasite belongs to the category known as wound-fungi—that is, the spores can only gain a foot-hold on an injured surface. But when it is remembered that a minute wound made by the point of a lancet is sufficiently large to enable the spores to germinate and enter the tissues of the plant, it can be readily understood that opportunities will not be wanting under natural conditions for enabling inoculation to be effected; and the fact that, when the disease once appears, its spread is rapid, proves this to be the case.

If a very thin slice or section is cut from a black pustule or stroma, as it is technically called, of the fungus, numerous minute flask-shaped cavities are seen to occupy its upper free surface. Each cavity contains a large number of cylindrical spore-sacs, or asci, each containing eight colourless spores, arranged in a single row. When mature, the spores escape from the open mouth of the flask-shaped cavities or perithecia, when they are probably dispersed by rain and wind.

Preventive Measures.—As infected branches are invariably killed, it is important to remove and burn all such on the first appearance of the disease. *Geo. Massee.*

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM × WENDLANDIANUM.

IN describing this pretty hybrid, a form of which was illustrated in the *Gardeners' Chronicle* on May 5, p. 275, Mr. R. A. Rolfe, doing the best he could with the information at his disposal, writes:—"This beautiful but puzzling plant, introduced by Messrs. F. Sander & Co., of St. Albans, from the Popayan ranges, New Granada, appeared with *O. crispum* Lehmanni, and is believed to be a natural hybrid derived from it, with some other species which grows there—possibly *O. cirrosum*, though the column-wings and crest show little affinity with our present plant."

Since that time it has been suggested that *O. crinitum*, as one of the other parents, would be more likely to be correct, although its known habitat is very wide of its recorded locality.

There seems to be little doubt that *O. crispum* Lehmanni is one of the parents, and on perusing a letter received from Consul F. C. Lehmann, in which he briefly describes a new *Odontoglossum* hybrid which he had found, which tallies closely with the characters of the plant illustrated in a recent issue of the *Gardeners' Chronicle*, I think it most probable that the *O. × Wendlandianum*

would be derived from *O. crispum* Lehmanni and the *O. aspidorhinum*, Lehm., which was sent to this country by its discoverer, together with various other *Odontoglossums*, about the time he wrote. *O. aspidorhinum* has the spiny crest which formed the puzzling feature in *O. Wendlandianum*, and is otherwise when crossed with *O. c. Lehmanni*, a more likely combination than any other suggested. A strengthening circumstance in the argument is that Mr. McBean, of Cooksbridge, who flowered the variety illustrated, acquired many of the *O. crispum* Lehmanni and other *Odontoglossums* sent over by Consul F. C. Lehmann, though, as is too often the case, he failed to label the plants, or keep them separate from others. *O. crispum* Lehmanni is itself a pretty and singular plant, bearing profusely well-rounded flowers, apparently intermediate between *O. Pescatorei* and *O. crispum*, with, as

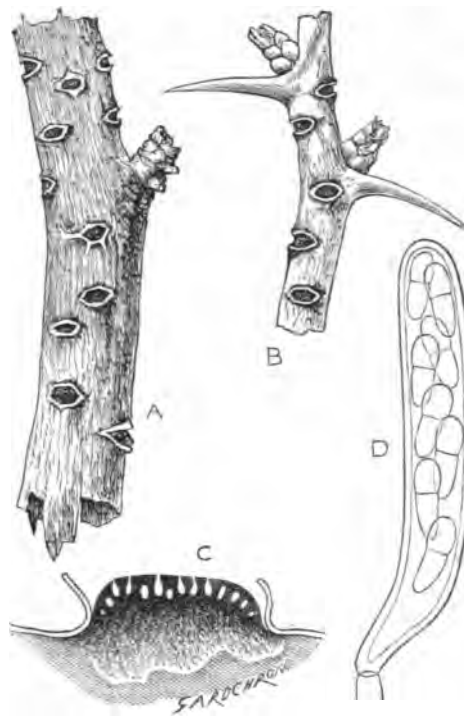


FIG. 92.—*PLOWRIGHTIA RIBESIA*.

- A.—Fungus on a portion of Red Currant stem; natural size.
B.—Fungus on Gooseberry branch; natural size.
C.—Section through a fungus showing the flask-shaped perithecia on the upper surface of the stroma; $\times 15$.
D.—A single ascus containing eight spores; $\times 400$.

Reichenbach stated in the original record, "usually purple and brown tint in the flowers."

Odontoglossum × Wendlandianum, Rolfe, was described in the *Gardeners' Chronicle*, July 6, 1889; and *O. aspidorhinum*, Lehm., sp. nov., Sept. 28, 1895, p. 356. *James O'Brien.*

FLOWERS IN THE SOUTH-WESTERN COUNTIES.

WHILE the budding woods have been starred with silvery breadths of wild Anemones, the pale blue form, known as *A. Robinsoniana*, perhaps the most charming of all the Windflowers, has displayed its refined beauty in the garden; and under no conditions does this Anemone reveal its attractions so unstintingly as when growing in a grassy dell or on a sloping bank near some rugged tree-hole, associated with a scattering of Lent Lilies, or other pale yellow Narcissi. *Anemone fulgens* has here and there retained its vivid colouring throughout the greater part of the month, the Aldborough variety being exceptionally brilliant during its concluding fortnight. *A. apennina* has been a sheet of soft

blue, and is most valuable for naturalisation in open woodland glades, where it increases rapidly, proving, in many instances, far more easy to establish than the common Wood Anemone. The bright yellow *A. ranunculoides*, with its Buttercup-like flowers, has also blossomed well. The Cape Pond-weed (*Aponogeton distachyon*) has covered the surface of ornamental water and rock-basins with its white, Hawthorn-scented flowers. This plant is an almost continuous bloomer, and there is not a single month in the year during which I have not seen it in flower in some district of the south-west.

The Dodecatheons have commenced to perfect their bloom-spikes, and the Dog's-tooth *Viola* have produced their gracefully-fashioned flowers. *Erythronium grandiflorum* and *E. Hendersoni*, the latter of a soft rose colour, with a yellow-margined eye of deepest maroon, being especially notable. In southern Cornwall, Persian *Cyclamens* [so called] are freely naturalised in the open and in the size of their flowers, which are thrown well up on comparatively tall stems, far outvie the less assertive charms of the hardy *Cyclamens*. Some of the individual blooms are of dimensions that would do credit to pot-culture, and I picked a single flower from a well-blossomed corm, whose extended petals measured just over 4½ inches in diameter. In the district referred to, *Freesias* also succeed well in the open ground; and in the third week of April I met with batches of these plants in profuse bloom and vigorous health that had received no other protection than being planted at the foot of a south wall.

Of the *Fritillarias*, the Crown Imperial (*F. imperialis*) has created a handsome effect in the border; and the well-nigh black-flowered *F. persica* has expanded the pendent cups of its many-blossomed spikes. While in the grass the delicate, drooping bells of the white variety of *F. Meleagris* have formed a charming picture. One of the most select flowers of the month is the early-blooming *Gladiolus tristis*; spreading rapidly in congenial soil, it throws up sheaves of flower-spikes, pale sulphur in colour, to a height of about 2½ feet, which at night-time emit a delicious fragrance. It is comparatively rare even in the south-west, but on account of its earliness, its decorative value, and its perfume, should be more widely cultivated.

Iris florentina, and varieties of *I. obliensis* and *I. pumila*, have commenced to flower; and *Mertensia virginica* to disclose its arching scape of the bells; while in the rock-garden, the bright yellow of *Morisia hypogaea* shines. *Muscari* and *Puschkinias* have been in flower, and at Enys, near Falmouth, I saw a number of plants of the New Zealand Forget-me-not (*Myosotidium nobile*) in fine bloom. Enys was the first Cornish garden into which this striking plant was introduced, seed having been sent home by Mr. Enys, who is one of the few that have had the opportunity of seeing this subject in bloom in its native habitat on the sea-beach of Chatham Island. Planted in porous compost in a slightly-raised bed, and liberally surfaced with sea-sand, the wide, glossy leaves and numerous flower-heads, proved the colony to be thoroughly at home, while numerous self-sown seedlings springing up around the parent plants, indicated an easy method of extending their culture if desired.

In the same garden, along the margin of a lakelet, the rose-coloured form of *Primula japonica* was naturalised; the brightly-tinted flower-heads reflected on the still water, creating a soft colour harmony. Many of the plants were growing in the water, which rose level with their crowns, and self-sown seedlings bordered the adjacent path. The Blood-root (*Sanguinaria canadensis*), with its snowy, yellow-stamened blooms, makes a pretty picture in a grassy nook, but this year has barely earned its right to be considered an April flower in consequence of the backward season.

Ranunculus amplexicaulis has enclosed its white

blossoms, and the Satin Flower (*Sisyrinchium grandiflorum*) and its white variety have borne their drooping, fragile bells amidst their grass-like foliage. *Stylophorum diphyllum* is displaying its yellow flowers; and *Triteleia uniflora* has provided sheets of white blossoms, being especially ornamental when grown in masses on rough banks. The chaste *Trilliums* are now in the zenith of their beauty, *T. sessile californicum* being generally more vigorous than *T. grandiflorum*, and often attaining a height of 18 inches, or more; in the majority of specimens, however, the flower does not compare favourably with that of the last-named species, owing to the narrowness of its petals.

6 feet in height, are sheets of yellow. *Cytisus racemosus*, in the south-west, often assumes almost tree-like proportions, specimens 10 feet high, being sometimes met with growing in the open garden. This subject is now golden with bloom, and indeed in this favoured coastal district, may be found flowering more or less throughout the entire year. *Cytisus præcox* is daily becoming more ornamental, and on a south wall *Edwardia microphylla* has produced its clusters of golden blossoms. The *Forsythias* have created brilliant effects, *F. suspensa* as a wall-plant, and *F. viridissima* as a shrub, while specimens of *Grevillea rosmarinifolia* 6 feet in height, the narrow leafage studded with

the *Rhododendrons* were at their best from the middle to the end of the month. Mr. D. H. Shilson's garden at Tremough, near Falmouth, contains a splendid collection of these handsome shrubs, some of which are nearly 30 feet in height. Many of the seedling varieties of *R. arboreum* and *R. barbatum* are of great beauty, while the immense bushes of *R. arboreum album*, *R. a. roseum*, and *R. a. cinnabarinum*, huge mounds of flower, are well worth a journey to see. *Viburnum rugosum*, when growing as a shrub some 8 feet high, and freely set with its large white flower panicles, as it has been during the past month, is a striking object, but appears rather uncommon even in the south-west. S. W. F.

HYBRID CINERARIAS.

I HAVE to thank Mr. Rolfe for his letter to the *Gardeners' Chronicle*, under the above heading, on p. 270, in which he takes exception to my remarks on the distinctness of the Kew *Senecio cruentus*, from the *Senecio cruentus* of De Candolle. Two minutes' conversation between ourselves would no doubt make it quite unnecessary for either of us to write two lines; but "All the world's a stage," and he and I are players upon it in this *Cineraria* question. Presumably we have an interested audience, and I may perhaps be allowed, therefore, to explain the matter of difference between us. He takes the species, I think it must be said, in the aggregate, while I particularly wished to point out a segregate—to use a botanical expression. In my article in the *Journal of the Royal Horticultural Society*, to which Mr. Rolfe refers, I fixed the plant, with which we had been working, as a plant of the Kew Garden. It might be anything botanically, but there could be nothing to question in that identification. Then I indicated that it was not the *S. cruentus* of De Candolle. Now, with regard to this point, I think it cannot be wrong to take De Candolle's original description in the *Prodromus*, and to exclude whatever does not agree with it.

I cannot refer to all the figures, but Mr. Rolfe quotes the *Botanical Magazine*, t. 406; and Andrews' *Botanical Repository*, vol. i., t. 24, and I freely accept those plates as representing *Senecio cruentus*, D.C.; but when Mr. Rolfe says that the Kew plant agrees with those figures, I can only express my dissent. I mean, of course, from the point of view I was compelled to adopt. I must beg to quote De Candolle as follows: "Foliis petiolis alatis et pagina infera. sanguinea distinctissima." I do not know that the petioles are never winged, but no leaves proper of my plants have any trace of a wing worth referring to. This I may pass over as not meaning much here, but the red under-surface of the leaf is decidedly important, and no Kew plant that I have seen—certainly none of the Cambridge plants, which I have taken pains to keep true from year to year—show any coloration to answer the description. Does Mr. Rolfe take no account of this, because, if not, I have to repeat my "friendly protest against the disregard of the botanist for differences which are great to the horticulturist." This power of colour, or its absence, might have a considerable influence upon future derivatives; and let me here point out that a red under-surface of the leaf is a twice stated character of De Candolle's *Senecio cruentus*. The Kew plant has not got this character. It does come under *cruentus*, undoubtedly, but only by an extension of the limits of De Candolle's species, by which it would cease to be his, though including both. Mr. Rolfe says of the Kew *cruentus*: "It is obviously either true *cruentus*, or one of the few other known Canary Island species, or an undescribed one. That much is certain." Here, again, I am bound to differ in a very definite manner, if by true *cruentus* Mr. Rolfe means typical *cruentus*. Probably he means by "true *cruentus*" any plant which must come under an aggregate *S. cruentus*. If he does not mean this he is certainly wrong, because I have three very dis-



FIG. 93.—AURICULA "ZISCA."

The premier Alpine Auricula staged by Mr. Douglas at the show of the National Auricula and Primula Society, on April 24. Colour golden in centre, shaded with orange-salmon (see p. 271 in our issue for April 28).

SHRUBS AND TREES IN BLOOM.

Acacia longifolia, *A. melanoxylon*, and *A. verticillata*, are now in flower in the open; the *Amelanchier* or *Snowy Meapilus*, has been covered with its white bloom-racemes throughout the greater part of the month; and of the *Barberries*, *Berberis Darwini*, and *B. stenophylla*, have been bright with blossom. *Camellias*, though past their best, are still decorative objects. In southern Cornwall, bushes growing in the open are so profusely flowered that the very weight of their flowers imparts a pendulous character to the sprays. *Ceanothus Veitchi* is bearing its blue bloom-clusters, and great shrubs of *Coronilla glauca*,

crimson flowers, have a distinct and attractive appearance. *Leptospermum baccatum* is bearing its tiny white flowers; and of the *Magnolias*, *M. conspicua*, *M. Lenzii*, and *M. stellata*, or *Halleana*, are amongst those in bloom at the present time. *Olearia Gunniana* is commencing to expand its Daisy-like flowers, *Prunus triloba*'s branches are set with blossoms of soft Rose, and both *Pyrus Malus floribunda* and *P. japonica* are blooming profusely. Of the flowering *Currants*, *Ribes speciosum* bears the palm for effectiveness, the drooping, *Fuchsia*-like blossoms of vermillion, hanging from the arching shoots, imparting a striking character to the shrub. The majority

tinuous plants which do not in the least vary, one in the direction of another, and which come perfectly true from seed, if not crossed. All these could only be called cruentus by Mr. Rolfe, but in the garden they differ almost as light from darkness, and one only could be rightly designated *S. cruentus*, D.C. Let it not be supposed that the difference is merely one of colour. Colour is often of little importance, but frequently differences of colour are accompanied—one might say correlated—by differences of more serious consequence. It is so, I believe, in this case. The plant which I believe comes nearest to *S. cruentus* of D.C. remains from year to year perfectly distinct, constant in leaf coloration, and obviously different from the *Kew cruentus*; yet I suppose that if a small plate, like those quoted, were made of the one plant, without knowledge of the other, it would not be easy to find any tangible difference, but that of colour, between the plate and the plant not drawn. Yet that colour would be a visible sign of more important differences that could not be seen, and so it would really be important. "The original cruentus worth the first notice of cultivators" need not, I think, as Mr. Rolfe supposes, be of an already improved race. The kinds of cruentus vary so much that we do not require any greater difference than we already know of. It is indeed the differences we know of that suggest other and even more important differences in a wild state. I entirely agree with Mr. Rolfe when he says that I need not expect to reproduce the garden *Cineraria* simply by intercrossing the wild species. This, indeed, I had not regarded as anything more than an initial step. *R. Irwin Lynch, Botanic Gardens, Cambridge.*

FLORISTS' FLOWERS.

CULTURE OF CHRYSANTHEMUMS.

THE plants are now making rapid progress owing to the increased amount of bright sunshine. Shift the plants into larger pots as soon as they require them. Do not wait for certain dates before doing this, but examine the state of the roots and be guided solely by them. A Chrysanthemum plant should never be permitted to experience a check to growth, and want of rooting space during spring and early summer, would cause a very serious check. Plants to be grown for the production of large blooms should be shifted into pots 5½ inches in diameter, and next month they may be removed into those in which they will flower. It is not wise to give too large a shift, because extra care is then necessary to prevent the soil becoming soured through watering. Neither is a very rich compost desirable. Use a compost of two parts fibrous loam, one part half-decayed horse-manure, and charcoal, wood-ashes, and sharp silver-sand in quantity, according to the state of the loam, whether heavy or light. To every bushel of the compost add 2 lb. of Thomson's Vine and Plant Manure. Arrange the materials for effecting drainage with care, and cover the crocks first with rougher portions of the compost, and pot firmly. The roots should be thoroughly moist before potting is commenced, so that the plants need not be watered heavily directly afterwards. A cold frame having a full southern exposure is the best site for the plants at this stage. Until new roots are made, the frame had better be almost closed during the night, but afterwards more and more air may be given the plants, and on favourable occasions the lights may be removed perfectly.

The watering of the plants needs the exercise of considerable care. They must not be permitted to suffer from too little, nor will they thrive if watered too liberally. In the latter case the foliage will become pale in colour, owing to loss of chlorophyll. Any plants so affected may be corrected by keeping the soil somewhat dry for a week or so. Stubborn cases may be treated with sulphate of iron, at the rate of half an ounce to a gallon of water. Thoroughly soak the roots on two

occasions with this mixture, and the green colour will soon be restored, in the first instance to the mid-rib of the leaves.

Green and black-fly must be warred against. Both of these aphides do incalculable harm, but both are easy of extermination if prompt measures be taken against them. Dust the plants so affected with tobacco-powder at evening, and syringe them next morning to wash away both fly and powder. Very badly affected plants must have the growing points dipped in tobacco-water.

If mildew be observed, apply flowers-of-sulphur. "Rust" spots must be stamped out at once by burning the leaves so marked, and by syringing with a weak solution of sulphide of potassium. *E. Molyneux.*

FOREIGN CORRESPONDENCE.

THE CULTIVATION OF MESEMBRYANTHEMUMS.

MR. ED. BENNETT, of Ash Vale, Farnborough, has transmitted to us the following communication, sent him by Dr. F. Franceschi, of Santa Barbara, California: "I was much pleased with your plea for Mesembryanthemums in the *Gardeners' Chronicle*. You ought to see what they look here with sunshine 350 days in the year. Unfortunately we have not many kinds, and up to now I had been hunting in vain for a scarlet, when, by a strange coincidence, in the paper preceding yours, I see mentioned *M. tenuifolium* as intense scarlet, absolutely dazzling in the sunlight; and *M. amœnum*, of a scarcely less bright vermilion; also *M. roseum*, of a rich rose tint, exceedingly showy. We have none of these, and I do not see them offered by any European firm, nor by any botanic garden. *Dr. F. Franceschi.*"

ALPINE GARDEN.

SAXIFRAGA RHEI.

ONE finds that this bright little mossy Saxifrage has gained many admirers among those who cultivate hardy flowers. Seeing that it is so easily propagated and grown, it is a matter for surprise that it is not more frequently met with. In the ranks of the Saxifrages of this section we have only one other which at all resembles it in colouring. This is the smaller and deeper-coloured *S. muscoides atropurpurea*, which is badly named, as its blooms are more crimson than purple. Of the two, had I to make a choice, I would prefer *S. Rhei*, which is larger in all its parts, and also softer in its tints. It opens a bright pink, and passes off a delicate blush. A letter of inquiry which reached me the other day reminded me that it is yet occasionally grown under the name of *S. globosa*, this being what it was called by one nurseryman who distributed a fair number of plants some eight or ten years ago, and from whom I first received it. I afterwards discovered that it was shown in London as *S. Rhei*, which one has confidence in believing to be the correct name. There is nothing whatever about it to make the name of "globosa" suitable. Like many other Saxifrages of the same section, it likes a rather moist soil, where it cannot suffer from drought in summer. In addition to its beauty at present, when in flower, it is pleasing in autumn and winter, when its mossy foliage is of brightest green. It ranks as a variety of *S. muscoides*. *S. Arnott.*

SAXIFRAGA SIBTHORPI.

If any one wants to grow a little yellow-flowered carpet plant which will not impoverish the soil in which it grows, and which can be readily cleared away when desired, then the little Saxifraga Sibthorpei of Boissier, *S. cymbalaria* of Sibthorp and Smith, may be grown. It has also the merit of growing well in either light or heavy soil, shade or sun, and, although only an annual or biennial, of sowing itself so freely that it is never likely to

take its departure from a garden into which it has once been introduced. I must have had it here for fourteen or fifteen years, and it is so plentiful now that it has to have its numbers greatly reduced every now and again. Yet it is not a troublesome thing because of this, as it is easily cleared away when required. It gives one a long season of bloom, beginning here about March, when the young plants are barely raised above the soil, and lasting far into autumn, when it begins to look rather untidy, and may be pulled away. No plants need be left for seed, as seedlings from the first flowers will make their appearance soon after. By the time autumn comes, this Saxifrage will have grown to nearly 6 inches in height. Although it seems to grow well anywhere, it looks more happy in soil which is a little heavy, and where it is in shade for a considerable part of the day. As this is written, there is a breadth of it in such a position in my garden. It looks delightful with its fresh, glossy-green, Ivy-shaped leaves, and little golden flowers. It is one of those little plants which need to be seen growing before their true beauty can be realised. *S. Arnott, Rosedene, Carsehorn-by-Dumfries, N.B.*

ANDROSACE SEMPERVIVOIDES, &C.

A little gem for rockeries came to me last year from Sundermann, of Lindau, named *Androsace sempervivoides*, Jacquemont. It has a minute rosette, with bright, rose-coloured flowers, coming out in April, and disregarding frost. On the morning of April 26, when my thermometer registered 24°, and the flowers and leaves of *A. sarmentosa* were utterly destroyed, *A. sempervivoides* on an exposed rockery by its side was quite uninjured. It increases by stolons above ground, 2 inches long, each making a rosette at the end, which roots readily if kept in contact with the soil. I am a little puzzled by the synonyms in *Index Kewensis*, of *Androsace coronopifolia*, *A. septentrionalis*, and *A. lactiflora*. The first I know well as a spring-flowering annual, coming up abundantly in summer from self-sown seed. *A. lactiflora* is a perennial, with very similar habit and flowers. The *Botanical Magazine*, t. 2021 and 2022, gives portraits of *A. coronopifolia* and *A. septentrionalis*, which are there said to be distinct species; but in *Index Kewensis*, *A. coronopifolia* (annual) is made synonymous with *A. lactiflora* (perennial). *C. W. Dod, Edge Hall, Malpas.*

IRELAND.

TRINITY COLLEGE AND ITS BOTANIC GARDENS, DUBLIN.

THE Botanic Gardens in connection with Trinity College are situated at some distance from the College itself, and in more congenial surroundings. The grounds surrounding the College buildings, nevertheless, are extensive and of great beauty, affording abundant scope for recreation for graduates and undergraduates. Until a severe storm occurred in October last, the grounds were adorned with a large number of fine timber trees. That storm, however, caused grievous injury, many very large specimens being scattered on the ground, torn up by the roots, or otherwise seriously damaged. Never in our experience have we seen more injury done in an equal space, and as it is well nigh impossible under existing conditions to attempt to replace these trees, the case is a sad one. It will tax the resources of Mr. F. W. Burbidge to restore the grounds to anything like their former appearance.

When making a rapid inspection of the museum, it was interesting to note the ancient drawings of *Nymphaea stellata* upon papyrus. The species may be easily identified by anyone conversant with the flower as now grown.

At the Botanic Gardens glass-houses of the old style still have to do duty in most instances. With lighter structures, the plants would show themselves off to much better advantage. Both under

glass and in the open grounds, there are hosts of uncommon species of plants to be seen here, thriving under the almost parental care of Mr. Burbidge, who takes special delight in bringing to notice any neglected or seldom seen plant.

In the houses are well grown examples of *Strelitzia angusta*, a noble plant, much stronger in growth than *S. regina*, with leaves fully 2 feet in length. *Panocratium latifolium*, a very distinct form with broad leaves. The original plant of *Calceolaria Burbidgei* (*C. Fuchsifolia* × *C. Pavoni*) was pointed out by its raiser, and the merits of this hybrid as a winter flowering plant are not

the grounds, such, for instance, as *Carpenteria californica*, which makes one envious. Pity 'tis, this tree has not a hardier constitution. *Laurelia aromatica* is similar to the Sweet Bay, but the foliage is more fragrant. As a plant for the rock-work, *Androsace lanuginosa* spoke for itself. Hollies are quite at home, many fine specimens being found; of these, *Ilex crassifolia*, with leathery foliage, and *I. Hodginsii*, with its fine Laurel-like leaves, are uncommon; so also are several weeping varieties observed here. Abundant crops of berries were evident in most instances. *Yuccas* thrive well, forming large and striking groups, the best

Zealand, and *A. Lyalli*, with *Xanthorrhæa hastilis*, are all notable plants, if not specially inviting. Of the latter genus, *X. quadrangularis* claims attention; it is a scarce plant. *Garrya elliptica* here grows to a large size, whilst of *Arbutus hybrida* there is a remarkable specimen some sixty years planted.

Of much interest was the thriving condition of the Dodder (*Cuscuta reflexa*) upon *Jasminum revolutum*, so also was the *Mialeto* upon *Pyrus spectabilis*. Examples of both *Foraythia suspensa* and *F. viridissima* were noted, and although quite distinct, these species are not unfrequently confounded. The fine mass of *Gunnera manicata* has been figured in the *Gardeners' Chronicle*, hence it is well known. The plants still increase in size. Its appearance, when in full leafage, must be very imposing. *Melanthus major*, some 10 feet in height, was quite an uncommon sight. A combination made here of *Narcissus Horsefieldi* and a *Pæony* with bronzy-red foliage, produced a pleasant effect.

Several of the Bamboos are forming thickets, too dense for the space allotted them. Mr. Burbidge has now removed to his new house, which the college authorities have erected for him in the grounds, and his friends on this side of the Channel may always be sure of a hospitable reception. *J. Hudson.*

A NEW DAFFODIL.

Messrs. Hogg & Robertson displayed at the spring show of the Royal Dublin Society a few blooms of a new Daffodil named Cloncurry. The segments of the perianth are irregular, three of them are narrow and tortuous, the remainder are broad and flat. The cup is an orange-red colour, and it is a rather large flower. It was raised, it is said, by Mrs. Lawrenson, Salerno, Killery.

THE GARDENERS' ASSOCIATION.

The members held their usual meeting on Thursday last, April 26. Mr. O'Kelly occupied the chair. A paper on "The Daffodil" was read by Mr. J. Shaw.

NEW AGRICULTURAL BOARD.

A difficulty has arisen in regard to the selection of inspectors, whose duties will necessitate a practical knowledge on their part of farming and horticulture. The only appointment which has yet been ratified is that of Mr. J. S. Gordon, B.Sc., late principal of the Agricultural College at Holmes Chapel, Cheshire.

The new Board assumed office on April 1, having taken as their quarters a row of houses in Merriion Street, in close proximity to the museums and scientific colleges, whilst the National Library of Ireland is adjoining. *A.*

BRANCHED PALMS.

BRANCHING Palms are so uncommon, that it may be of interest to illustrate one, of which a photograph (fig. 94) was sent us by Dr. Graciano de Azambuja, Porto Alegre, Brazil. The Palm is *Cocos Geriva* of Barbosa Rodrigues, the Director of the Botanic Gardens, Rio Janeiro. The trees (there are two, one with two, the other with four branches) were transplanted to an amateur's garden near the city of Rio Pardo.

PLANT NOTES.

IRIS ORCHIODES.

THIS is, with me, one of the reliable flowers which never fails to bloom annually. It is, in addition, one which in this soil never appears to require any attention save taking the precaution of keeping clear of its crowns when doing up the border while it is at rest. It is exceedingly hardy here, though I have seen the leaves a little marked by late frosts when it had made growth early. This injury was not sufficient to have any prejudicial effect upon the future welfare of the plant.



FIG. 94.—BRANCHED SPECIMEN OF *COCOS GERIVA*, FROM PORTO ALEGRE, BRAZIL

sufficiently recognised even now. Orchids are not extensively grown, but two fine specimens in full bloom of *Dendrochilum Cobbianum* call for special notice. *Cattleya labiata* was well represented, likewise the seldom seen *Cypripedium* × *Arthurianum*, one of the few hybrids with the blood of *C. Fairleanum* in them. *Bomarea conferta* was a thriving example, and one of the best of its genus. Equally happy was *Psidium Cattleianum*. As a sub-aquatic, *Papyrus antiquorum* finds a congenial home in a lofty house, where there is also a large plant of *Musa*. In a cool fernery, some large specimen Tree-Ferns are becoming well established, and the filices are growing well.

There is a great wealth of trees and shrubs in

being of *Y. angustifolia*, *Y. gloriosa*, and *Y. recurva*. Of *Colletia horrida*, known also under other synonyms, there is a fine specimen some 15 feet or so in height; *C. Bistonensis* is also well represented. Of New Zealand subjects, the examples are many of *Dracæna australis*, the finest being more than 20 feet high. In the management of these, a detail worth recording is the method of protection that Mr. Burbidge adopts, viz., that of leaving all the old foliage upon the plants, the leaves as they turn brown being tied down close to the stem. *Phormium tenax* makes also a most effective plant, that known as the Powerscourt variety being much the hardier form. *Aciphylla squarrosa*, or the Bayonet-tree of New

It is quite pretty enough to deserve some consideration at the hands of the many who admire the Iris in its many forms. There is something attractive about its habit of growth, albeit a little stiff at first, and there is a peculiar lustre about the foliage which is not easily described, but which will be readily observed by those who grow it. It blooms rather freely, the typical form having bright yellow flowers with a blotch of colour termed purple; though I accept this definition of the colour of this blotch with some reserve, as it seems to me more brown than purple. The blotch is on each side of the crest. These flowers are produced from the axils of the leaves, and are of good size. Iris orchoides has been grown here for several years and annually increases in size and beauty in the sandy peat of the bed in which I grow it. There are two varieties in addition to the type. That named *oculata* is described as having "the blade of falls more spotted," and that named *cœrulea* as having "lilac flowers with a yellow blotch in the centre of the blade of the fall." These varieties appear to be scarce, and are seldom offered in catalogues. I have not grown either *oculata* or *cœrulea*, but I should think the latter would be worth securing. I saw it offered in a continental catalogue a year or two ago. *S. Arnott, Carsethorn-by-Dumfries, N.B.*

THE WEEK'S WORK.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Chicory, or Witloof.—In seasons like the present, when ordinary vegetables are scarce in most gardens, forced Chicory is not only invaluable as a salad, but it makes an agreeable change from Seakale. The seeds may be sown in the open, on ground that has been well trenched, in drills drawn at 18 inches apart, sowing thinly, and thinning the plants to a distance of 15 inches apart. The land should be hoed occasionally, and water liberally afforded in dry weather.

Ridge Cucumbers.—The seed may be sown in gentle heat, and the plants gradually hardened off before planting them out of doors. All the varieties are more prolific if afforded cold frame culture.

Seeds.—In some localities the frosts in April destroyed young plants of Broccoli, Brussels Sprouts, &c., and where this has occurred, sowings should be made in boxes or disused frames to replace those destroyed. All seedlings which are unharmed should for the present be afforded water early in the day, and not in the afternoon.

Peas.—Sow seeds now for main crop, and make additional sowings at intervals of ten days. Peas thrive best in a deep, rich, calcareous soil, free from raw manure; but in gardens in poor condition, it may have been necessary to add a good layer of farmyard manure when the trenches were dug. The seeds should not be sown at all thickly, and should be covered to the depth of 2 inches. The distance to be allowed between the rows must depend upon the height and growth of the selected varieties, but in any case not less than 5 feet should be allowed for this crop. *Ne Plus Ultra*, *Veitch's Perfection*, and *Main Crop*, are among the many excellent varieties that may be depended upon.

Staking Peas.—Most of the second early varieties will now be of sufficient height to require staking. It is best to employ new stakes, as they are not so liable to be broken down by wind. If Peas be carelessly staked, the crop will suffer. Too many sticks are used in many instances, and they are not made firm in the ground, so that the stakes exclude both light and air from the Peas. At the time of staking, draw the earth up slightly to the haulm of the Peas with a hoe.

Asparagus.—Great care should be taken when cutting Asparagus, that the knife does not injure the crowns. This danger will not be so great if the top-dressings, previously advised, have been applied. The heads should be removed from the beds as soon as they are ready for use, and at times when the supply exceeds the demand they should be tied in bundles and stood in water, or better still in a little wet sand.

Broad Beans.—In gardens where space will permit, another sowing may now be made. Choose a small piece of ground in a somewhat cool position, and plant the seeds in double rows about 4 inches apart. Green Windsor and its improved forms are the best for this season.

Seakale.—Plantations of one year's standing, and those stools that have not been forced, will flower and weaken the crowns if allowed to grow. These should therefore be cut down to the ground line, and each cut sprinkled with soot to prevent bleeding. As soon as growths again commence to push, thin them out to three strong shoots. They will then produce short sturdy crowns for next season's forcing.

Late Sowings of Seeds.—Almost any kind of late vegetables is useful in most gardens, and it may be well to make another sowing of Leeks and Celeriac. These should be sown in shallow boxes, and if given every encouragement will be ready for transplanting by the end of July. In the meantime a small but open plot of ground should be well trenched for them, and if the soil be poor, put a good layer of manure at the bottom. Leeks from seeds sown during March will now require occasional thinnings, and during dry weather waterings may be necessary. The beds too must be kept clear of weeds. Celeriac may now be planted out on a border, having a western aspect. Level the soil, and make rows about 2 feet apart, allowing a distance of 18 inches between each plant. The soil should be constantly loosened with the hoe, to encourage growth, and copious waterings will be necessary in dry weather.

PLANTS UNDER GLASS.

By T. EDWARDS, Foreman, Royal Plant Gardens, Frogmore.

Hydrangeas.—Cuttings for the production of early flowering plants next spring should be put in as soon as the wood has become partially firm; choosing shoots from 3 to 4 inches in length, and making a clean cut below a joint, removing no leaves, but cutting off half of the lower pair. Insert the cuttings singly in thumb-pots, using a moderately light sandy soil. After making a hole with a dibber, drop some sand into it, then insert the cutting, and press the soil firmly around it. Place the cutting-pots in a brisk bottom-heat, and syringe them frequently, so as not to allow the foliage to flag. Autumn-struck Hydrangeas make useful decorative plants, but they do not produce such fine blooms as those struck at this season.

Decorative Plants.—For employment in apartments, rooms, and in dinner-table decorations, numerous plants grown in pots of small sizes are indispensable, and in order to obtain plants for use in the later summer months, the present is a suitable time to put in cuttings in quantities of *Panicum variegatum*, *Fittonias*, *Tradescantias* in variety, *Selaginella denticulata*, and *Pileas*. The latter, employed with "dot" plants of *Caladium argyrites*, standing at 15 or 18 inches apart, and an edging of *Panicums*, afford a finished appearance to any group or basket of plants; and for the surfacing of large vases, in which *Palms*, &c., are standing, growing plants of *Pilea* and *Selaginella* look better, and retain their freshness longer than moss, which cannot always be obtained of a fresh green colour. Cuttings of all these plants soon form roots in a brisk bottom-heat, with shade and frequent syringing, and grow readily in moderately light sandy soil. When established, the *Panicums* and *Tradescantias* may be placed at the sides of the stages, where they will help to hide large pots, hot-water pipes, or bare walls.

Ferns from Spores should be divided and pricked off as soon as large enough to be handled. Let them be freed from moss before pricking them off into pots or pans filled with finely-sifted peat, leaf-mould, and sand. *Adiantum emulmum* is one of the best of the species, but all *Adiantums*, *Pteris*, *Lomarias*, *Nephrolepis*, *Aspidiums*, &c., are very useful when established in small pots. For associating with flowers in button-hole bouquets, the dwarf erect-growing *A. mundulum* supplies just the right size of frond, which lasts well if fully developed and hard.

Pandanus Veitchi, &c.—Off-sets should now be removed when small, for if allowed to remain on the plants they grow erect like Pines, and retain that habit. *Curculigos* should also have the off-sets

removed, these making graceful plants if potted in small pots. *Cyperus alternifolius* may be re-potted in 5 and 6-inch pots, using good sound loam, and be grown on in heat. This species is semi-aquatic, and requires to be afforded water copiously. The leaves, cut with stems 2 feet or more in length, are useful for mixing with Japanese *Chrysanthemum* blooms in tall vases. Another species not so well known, *C. natalense*, with long arching leaves, is quite as easily grown, and is a very effective plant for forming groups in conjunction with *Eulalia variegata*.

Oranges in Pots (grown for bloom) may be cut hard back to the old wood, and if the soil has become sour, they may be shaken out and re-potted in a compost consisting of two parts loam and one part peat, with sand, and grown on in an intermediate-house. When established, stand the plants outside, fully exposed to the sun. *Otaheite Oranges* succeed best in peat and leaf-mould; they should be grown in a greenhouse, and the fruit thinned to eight or nine on a plant.

Balsams.—Seed may yet be sown in pans of light soil; pot off in small pots when a few true leaves are formed, and keep them close to the glass in a cold pit.

THE FLOWER GARDEN.

By J. BENBOW, Gardener to the Earl of Ichester, Abbotbury Castle, Dorset.

Summer Climbers.—*Tropeolum speciosum* thrives in the southern as well as in the northern counties if a proper position be selected for the plant, namely a border which does not become dust dry or baked by sun heat. In a cool spot, such as would suit *Lily of the Valley*, the climbing shoots grow apace even in direct sunlight. A low wall or trellis is suitable for training the plant upon, or failing this, an out-house wall facing N.E., with fish-netting stretched along it, and kept in place with nails, would form a floral curtain of from 10 to 15 feet in height. Before placing the roots in the ground, the border should be well trenched, 2 feet deep. A layer of coarse materials to serve as drainage, laid in the bottom, if the soil be considered too retentive of moisture, adding plenty of leaf-mould, and bone meal, or manure and grit; mixing these thoroughly with the staple. It is important that coarse-growing Ivies, &c., in that part of the border, be kept away from the roots. A few days after the soil has been dug, a drill may be drawn 10 inches distant from the wall, fence, &c., and 4 to 6 inches deep, less in heavy than in light land, in this lay the roots, and cover with soil. The plant climbs without man's assistance, and with the exception of liberal applications of water during the heat of summer, and taking care that the mice do not nibble the shoots, &c., the plant requires but little attention. In hot summers, pretty torquoise berries are produced.

T. tuberosum.—This species is not quite hardy, and the tubers that have been stored away since last year, may now be planted outside. It succeeds under much the same conditions as *T. speciosum*, but being of a more vigorous habit of growth, the soil need not be made so rich as advised for *T. speciosum*.

T. pentaphyllum, T. polyphyllum, and T. peregrinum.—Tubers of the first two are useful for planting, also seed of the latter for giving displays of colour on rockeries, or the banks of ponds, &c. Plant in prepared soil, in fair sized pockets, along side rocks or boulders, over which the shoots may hang. The plant revels in spots screened from the rough wind. The first two named are fairly hardy, but seed should be saved from each, especially the latter and *T. peregrinum*, which is an annual.

T. Lobbianum.—Rooted cuttings must now be potted from those in 3-inch into 5-inch pots, to insure vigorous and effective plants for putting out immediately all danger from frost is past. Nothing is more susceptible to frost than this *Tropeolum*, and nothing is more useful for covering arbours, trellises, &c. Erections resembling seats, domes, and rustic summer-houses here have been covered with these plants, and they have been much admired. These temporary structures were made from home-grown canes of *Arundo Donax* and *Arundinaria Simoni*, stiffened with uprights made from green-painted Ash or Hazel stakes. Like the common *Nasturtium*, *T. Lobbianum* grows freely in fairly rich soil. The plant flowers till late in the season. During the month of August, applications of

diluted liquid-manure help the plants; and at that season cuttings may be taken, the species not producing much seed.

T. majus (*Nasturtium*).—Sowings of the Tom Thumb section may now be dibbled out in long lines, or if self, in distinct beds. They are effective bedders where rich colours are wanting, and coming quickly from seed serve as relays where unlooked for failures have occurred with *Pelargoniums*, &c.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener to F. A. BEVAN, Esq., Trent Park, New Barnet.

General hints on future work.—Although the weather still keeps cold the ground is in capital order, affording rare opportunities for killing weeds and stirring the surface between fruit trees and bushes. The air being dry, and rains infrequent, it becomes necessary to afford water to late planted fruit trees and bushes, and to syringe the crowns every day about 10 A.M., continuing to do this as long as it may be required. The Plum and Cherry trees should often be examined for aphides, which increase with incredible rapidity in weather such as we are experiencing. The best remedy is tobacco powder applied with an indiarubber puff, until such time that insecticides in liquid can be applied later on. The clay surrounding fruit-tree grafts may need to be damped with a fine rose waterpot if it show cracks, and to be then smeared over with a thin clayslip, so as to close the cracks and keep out the air and the rain. It is good practice to bind a little wood-moss round the clay. Red spider will now be found on the Gooseberry, especially when it is trained as a cordon, but the plant being now in flower, nothing can yet be done to eradicate the pest. Let all fruit trees and bushes be examined at short intervals of time for caterpillars, dealing promptly with them when found.

General Directions.—The trees and bushes of Cherries, Pears, and Plums have set their fruits, and Apples are in bloom generally in the south and west, the prospect of good crops, barring sharp frosts, being promising. Frosts have been severe in some parts of the country, and the Plum crop in such parts has suffered to a considerable extent, but the amount of frost experienced in Middlesex and Herts during the past three weeks has been but slight, and no great deal of harm has resulted. The fruit cultivator must always be on the alert, for there are injurious insects to combat, even if his crops should escape the frosts. A scrutiny of the Plum and Pear-trees lately has shown me that the larvae of several species of moths are fairly plentiful, and a few have also been observed on Apples. Cherries are so far free from maggot. The best method of dealing with these at this stage, especially on wall trees, is hand-picking, which, although it may seem to be a tedious business, is in reality not so, as a sharp, intelligent man, furnished with a pair of tweezers, can search for the caterpillars on a great many trees in a day. The reason why I recommend tweezers is that the young leaves are then less damaged than when the grubs are nipped with the finger-and-thumb. By this means the attack is checked until such time as the trees can be safely sprayed with an insecticide, while it really saves a good deal of labour in the long run. Trees in the open garden, unless grown as dwarf bushes, cannot very well be dealt with in this manner, and the only alternative is to spray the trees as soon as the fruit is set. This should be done at this season early enough in the morning, in order to allow of the foliage getting dry before nightfall. The matter of aphids on Peaches and Nectarines, and maggot in Apricots, having already been touched upon in some of my earlier articles, it will suffice to observe that a vigilant outlook must yet be kept, and measures taken to destroy all insects noxious to fruit-trees. Should blister appear on the leaves or shoots of the two first-named fruits, remove and burn forthwith. This disease is now known to be the result of a fungus, and not caused through cold and east winds, as was generally supposed to be the case. The trees may with benefit be washed with tepid water on warm mornings, which, besides keeping aphids and red-spider in check, clears off the remains of the flowers. Unless a good rainfall should occur ere long, I fear that aphides will cause much trouble on hot, dry soils. Apricots may be copiously washed on warm days. As the foliage is now

developing fast, the blinds need only to be lowered over the trees on cold nights. Where nets are used, these should be gradually dispensed with, both on Apricots and other fruit-trees for the same reason. On light soils Apricots will require water at the root, the rainfall having been but slight since early in April, amounting only to 0.28 inch here. Where water is needed, it should be afforded to Apricots abundantly. Liquid-manure well diluted, or artificials, such as dried blood and bone-meal used in equal proportions, or a combination consisting of 1 lb. muriate of potash, 1½ lb. dissolved bones, and 1½ lb. bone-meal, well mixed together, form good stimulants for Apricots. The artificials named, when mixed ready for use, should be sprinkled on the border at the rate of 2 oz. to one square yard, previous to breaking up surface to the depth of an inch or so, in order to allow the water to enter the soil freely.

FRUITS UNDER GLASS.

By J. ROBERTS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Vines.—As the warmth of the external air increases, the ventilation of the vineries should be increased in the length of time it is afforded, and in volume, especially on days that are unusually warm. Vineries containing late ripening Vines may be left open until late in the evening. To do this will tend to make all shoots short-jointed, and give increased firmness to the leaves. Gardeners in their methods act too much like machines in closing every vinery at about one set hour of the day, when it would be better for the Vines to take advantage of fine warm days to prolong the hours during which air is admitted, and thus strengthen the Vines, and render them less liable to fall a prey to insects and disease. It may be asserted that no vinery after this date should be entirely closed at night, and where there are late-ripening Vines of the Black Hamburgh variety, the vinery should be kept as cool as possible compatible with their finishing in good time, so as to keep them well late in the autumn. During very bright sunshine a slight shade on the fruit will be beneficial to Vines that are poorly rooted, but Vines that are well established, and whose rods are not trained very near to the glass, will not be injured at all by the fullest exposure, if the borders are kept supplied regularly with water. A fish-net with half-inch mesh will afford sufficient shade, and it should be readily removable.

Late Vineries.—During the next month efforts must be made to keep abreast of the work of thinning, tying, and stopping. Great care is required when the Vines are full of sap, and the shoots as a consequence very liable to snap on being bent in getting them into the right position without losses, and it is often safer to bring a shoot down by degrees in the course of three or four days than to risk it in one. A temperature at night of 60° will suffice for all Vines, except Muscats, which may be given a warmth of 5° higher. The day temperature may be correspondingly higher, say, from 15° to 20°, the higher figure for Muscats, both black and white varieties.

Strawberries.—As far as may be practicable these plants should now be cleared from the forcing-houses, excepting those growing in comparatively cool houses. Even in these the Strawberry plants should not come into contact with the foliage or stems of the permanent Vines or fruit-trees. Plants that may be standing in frames and other positions in close order should now be brought on by any of the means at the command of the gardener, in order to have the fruit fit for consumption before that from plants in the open is ready for use. Plants in flower should have the set fruits thinned as soon as it can be seen which are the most likely to produce the finest fruits; and where too many trusses of blossom have shown, some of them should be removed. Wherever placed at this season, the plants should be heavily syringed twice a day.

Peaches and Nectarines.—Let all trees having a plentiful crop of fruit set be thinned without delay, in the manner previously described for early forced trees. Disbudding should also receive constant attention at short intervals of time. These late Peacheries should be as freely ventilated as is compatible with progress, and the well-being to the trees and the crop of fruit.

Firing.—Except on frosty nights and during cold weather by day, artificial heat will not be much needed. Let free ventilation be afforded until about 5 P.M.; when the trees may be syringed; and afford another syringing at 6.30 A.M. Aphids should be met with vaporising, or syringing with quassia-water. Trees in cold houses will need close attention in order to carry them safely through the present month. Whenever frost is anticipated such houses should be closed by 3 P.M.; the warmth being allowed to rise to 78°. The ventilators may be opened in the morning when the temperature has reached 50°. Not much damping down is needed at any time, and in cold or frosty weather there should not be any afforded, for fear of losing the crop of fruit if the frost should be sharp.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WISAN, Bart., Clare Lawn, East Sheen, S.W.

The Treatment of Plants when in Flower.—A large number of various species of Orchids are now in bloom, and the gardener is apt to relax in his watchful care of the plants after the consummation of his efforts is attained. This, however, should not be, for just as much or more care is needful then as before. Some cultivators injure their plants by keeping the blooms uncut for too long a period of time, when by removing them after the lapse of a reasonable time, and placing them in water, their beauty might be observed for as long a term as if they were still on the plant. By doing this, the plants suffer in health not at all. Cattleyas, Lælias, Epidendrums, Odontoglossums, and Oncidiums, should be kept moderately dry at the root when the plants are in flower; and, speaking generally, for some time afterwards. In order to preserve the blooms in fine condition, the air of the houses must be kept fairly dry; the dryness at the root will induce a cessation of growth—in other words, rest. However, there are exceptions, as, for example, Cattleya Warscewiczii, C. intermedia, C. Gaskelliana, and those of the guttata section, which flower as soon as the pseudo-bulb has developed, and before roots emerge from its base, these coming soon afterwards. In the case of such species growing in this manner, more general conditions are desirable. Cattleya Mossii, C. Mendeli, C. Lawrenceana, C. Trianaei, and C. Schroderae, are species which should be afforded a short rest-period after flowering, or weakly growths will result. Other plants to be similarly treated are Odontoglossum crispum, O. Rosii, O. Cervantesii, Oncidium crispum, O. Marshallianum, O. concolor, &c., each of which requires a long rest. Many Cattleya and Lælia pseudo-bulbs have been lost through removing a part of the sheath together with the flower-spike, thus forming a receptacle in which water can lodge, which, where evaporation is slow, remains sufficiently long to set up decay of the sheath and the pseudo-bulb. My practice is to make an incision in the side of the sheath, just large enough to sever the flower-stem, and thus leave the sheath intact, when decay ensues in the ordinary manner. Decayed or dried-up sheaths should be cut off clean at the base.

Show-house.—My experience of having a separate house for flowering-plants has not been a pleasant one, and to my mind it is preferable to allow the plants to remain where they have grown. If it is necessary to have a display in any particular house, that house should be of a warm, intermediate character, carefully ventilated and shaded, and the air not kept at saturation-point. The plants should be removed to their old quarters before any shrivelling of the pseudo-bulbs occurs.

Dendrobium atro-violaceum.—Thanks to Messrs. Sander & Co., this species is now common in collections. As may be surmised from accounts of the climate of New Guinea, whence it comes, the plant needs ample heat and moisture to perfect its pseudo-bulbs; but, contrary to most Dendrobies, strong sunlight acts adversely on the leaves, hence a rather shaded position in the East-Indian house is best for it. It should be grown in pots, &c., three-parts filled with crocks, which are surfaced with a thin layer of peat and sphagnum-moss. Roots are now about to push forth from the young growths, a good time to do any necessary surfacing or re-potting. When, owing to dry weather, evaporation is rapid, water should be afforded in large quantities whilst the plant is growing; and on all favourable opportunities they should be syringed once or twice a day.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR THE ENSUING WEEK.

WEDNESDAY, MAY 16 { Royal Botanic Society: Exhibition
in Regent's Park.
FRIDAY, MAY 18 { Annual Dinner of the Gardeners'
Royal Benevolent Institution.

SALES.

TUESDAY, MAY 15.—Sale of Established Orchids at Millbank, Wilderspool, Warrington, by order of Mr. W. Bolton, by Protheroe & Morris at 12.30 o'clock (two days).
WEDNESDAY, MAY 16.—Palm Seeds, Gladioli, Stove and Greenhouse Plants, &c., at Protheroe & Morris' Rooms.
THURSDAY, MAY 17.—Sale of First Portion of Orchids, at The Nursery, Park Lane, Tottenham, by order of Mr. G. E. Pennett, by Protheroe & Morris, at 12.30 o'clock.
Clearance Sale of Plants and Sundries, at Branch Hill Lodge, Hampstead Heath, by order of Mr. B. Woodd-Smith, by Protheroe & Morris, at 1 o'clock.
FRIDAY next, MAY 18.—Imported and Established Orchids, at Protheroe & Morris' Rooms.
SATURDAY, MAY 19.—Unreserved Sale of Bedding Plants, at Chittie Hill House, Wood Green, by order of Mr. Percy Whellock, by Protheroe & Morris, at 12.30 o'clock.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—54°8'.

ACTUAL TEMPERATURES:—

LONDON.—May 9 (6 P.M.): Max. 56°; Min. 50°.

May 10.—Showery; chilly.

PROVINCES.—May 9 (6 P.M.): Max. 53°, Eastern counties; Min., 45°, N.E. Scotland.

THE death of Mr. T. B. HAYWOOD on May 3, 1900, in his 74th year, at his residence, Woodhatch, Reigate, will be severely felt by his many friends and associates. He was an enthusiastic gardener, and although he had his special favourites, yet no department of his garden was neglected, so that Woodhatch was a typical English garden, where might be seen as specialties Roses in the summer, Chrysanthemums and fruit in the autumn, Orchids all the year round. He was interested in Hybridisation and various Passion-flowers, and Dendrobiums were raised at Woodhatch. He was a Vice-President of the Royal Horticultural Society, Treasurer of the National Rose Society, and, from his sympathetic temperament and great experience, was much sought after as a counsellor. Mr. HAYWOOD was present at the Special General Meeting of the Royal Horticultural Society on the 25th ult., so that his death happened little more than a week after that occurrence. Some year or two ago Mr. HAYWOOD had a serious illness, and it may be feared that his constitution was then impaired. His death leaves a vacancy on the Council to be filled up, in addition to that caused by the withdrawal of Mr. ARTHUR SUTTON.

The funeral took place in Reigate Churchyard on Tuesday last, Mr. H. J. VEITCH, Mr. GEORGE PAUL, Mr. J. PAWLE, and many representatives of the Royal Horticultural and of the National Rose Society were present.

THE beautiful crimson or purple female flowers of the common Larch excite admiration at this season, contrasting as they do so vividly with the light green of the foliage. Ripe cones of this and of the other species are abundant in herbaria and museums, but flowers in their spring dress are by no means common in collections. Moreover, they vary at different stages of their growth, so that whilst at one stage the coloured bracts project much beyond the scale which is destined to bear the seeds,

in another stage the scales outstrip the bract, and more or less conceal them. It is, therefore, desirable to examine the flowers at different stages of growth; and we are indebted to the authorities of the Royal Gardens, Kew, for the opportunity of examining several which are in flower at this season.

The common Larch, *L. decidua*, of Miller, but better known as *L. europæa*, has its cones placed on short, decurved stalks; they are more or less cylindric or oblong in shape, and the purple, two-lobed bracts end in a green, leafy projection. *Larix dahurica*, probably only a form of *L. europæa*, is not in flower this season, but we have notes of this form taken at Kew as long ago as 1879, in which the young female cones are described as in all ways very similar to those of the common Larch, of which it is probably a mere form.

The young flowers of GRIFFITH'S Larch are stalked and ultimately upturned; oblong, cylindrical, with long, recurved, oblong, retuse, purple bracts, ending in a long, leafy, reflexed point of a golden-brown colour. This is the



THE LATE T. B. HAYWOOD.

Himalayan Larch, described by Sir JOSEPH HOOKER in our columns on June 5, 1886, and figured in the same year from Col. TRELAWNY'S garden, Menheniot, Cornwall. We have also seen flowering specimens in Mr. WILLSHIRE'S garden, The Frythe, Welwyn; it is the handsomest of all the Larches. It is a native of the Eastern Himalaya, and has been recently discovered in the mountains of West Szechuen by PRATT (n. 782), at an elevation of 9,000 to 13,000 feet.

Larix leptolepis is a Japanese species, also figured in our columns. Its young female flowers are sessile, surrounded by the leaves; broad-based, conical, with broad, recurved, green bracts, with narrow, purple edges. It forms a tree 70 to 80 feet high in the central island of Japan. At Kew the dark bark is scaly, revealing a pale-coloured yellow inner bark, like that of a Scotch Pine. The branches are horizontal, not deflexed, and the leaves are flattened and glaucous. The cone has been figured in our columns. There is an alpine form called *leptolepis Murrayana*, of MAXIMOWICZ, which, according to SARGENT, varies in its dwarfer habit.

Larix pendula, an American species, has shortly-stalked, deflexed, female cones about 15 mill. long, with oblong, purple, slightly-lobed bracts, ending in a short, recurved, leafy point.

Larix occidentalis, a West American species, little known in this country, though described and figured in our columns by Prof. SARGENT in May 22, 1886, and in *Garden and Forest*, December 9, 1896, has the young cones about 2 cent. long, tapering to the point; the bracts continuous with the leaves and of the same shape, linear-lanceolate, very slightly if at all lobed, and ending in a slender, recurved, green point with white edges. It is thus very different from the European form, being denser in habit, with longer leaves, wider than those of *europæa*, and much more glabrous. The tree attains a height of 150 to 200 feet, and is stated to be one of the most beautiful and impressive trees of the American continent, and in strength of timber to surpass all other American Conifers.

When grafted on the Japan Larch, this species grows much faster than when on its own roots (SARGENT'S *Silva*, xii., p. 13, adnot.).

THE ROYAL PALM.—Our illustration (fig. 96) for which we are indebted to Mr. H. F. MACMILLAN, shows the avenue of noble Palms in the Peradeniya Botanic Garden, Ceylon, constituted by *Oreodoxa regia*. The magnificent gardens at Peradeniya, have been presided over by such men as GARDNER, THWAITES, and TRIMEN, all old friends of the *Gardeners' Chronicle* and its editors, and are now under the direction of Mr. WILLIS, who is endeavouring with success to rival the Buitenzorg Botanical Institute under the direction of Prof. TREUB. We hope shortly to publish other illustrations of this noble tropical garden.

DR. CARL FRITSCH, the extraordinary professor and assistant in the botanical garden of the Vienna University, has been appointed by the Emperor FRANZ JOSEPH professor of botany in the University of Graz, with the title of an ordinary University professor. *Illustrirte Flora*, May 1, 1900.

MR. JAMES TEGG.—There are many gardeners and others who will be interested in learning that Mr. JAMES TEGG has ceased to have charge of the gardens and grounds at Bearwood, Wokingham, after nearly thirty years' service. He will remain on the Bearwood estate in the capacity of forester, and now resides at Barkham Hall, Wokingham. Bearwood possesses many features of exceptional interest in the gardens and grounds, which may be said to have been largely the creations of Mr. TEGG. During his long term of service, a new palatial mansion was erected, and the grounds about it relaid and remodelled, the kitchen garden greatly extended and improved, and plantations made. For nearly or quite half a century, Mr. TEGG has occupied a prominent position in the horticultural world; in the early fifties he was exhibiting for Baron HAMBRÖ, of Roehampton, staging Azaleas and other plants, but more particularly fruit. In 1866, when having charge of the gardens at Clumber, Notts, he exhibited at the great International Horticultural Exhibition at South Kensington, held in that year.

CHISWICK.—The fellows of the Royal Horticultural Society had an object-lesson on Tuesday in the magnificent collection of *Vanda teres* in bloom from Gunnersbury, and in the display of vegetables grown at Syon. Both these localities to our own knowledge are as smoky and as foggy as is Chiswick, and both are within a mile or two of the "exhausted" garden.

KEW is particularly attractive now in its spring dress. The Daffodils are over, but the Tulips are in their glory. Among the best are *Artas*, bright glowing red over glaucous foliage; *Keizerskroon*, scarlet, deeply edged with yellow, a regal

flower; *Chrysolora*, canary-yellow; Thomas Moore, orange-buff; Joost Van Vondel, crimson, flushed with silvery-white; Duchesse de Parme, yellow-ground, heavily flushed with orange-red—very showy. Among the flowering shrubs, *Genista præcox*, with pale sulphur-coloured flowers, is just coming into bloom; and a tree of *Prunus Mahaleb* var. *chrysocarpa* is a wonderful sight, with its pendulous branches covered with small Hawthorn-like flowers. Almost equally beautiful are two trees of *Pyrus baccata*, much resembling in flower the Dartmouth Crab. In the temperate-house the *Rhododendrons* are past their best, but

AUBRIETIA DELTOIDEA.—A rare collection of varieties of this beautiful species may now be seen on the Kew rockery. Some of them must be very difficult to differentiate, but some are very marked, such as the variety known as Dr. Mules, the darkest and richest violet-blue colour of the whole. *A. Leichtlini rosea* is of the shade indicated by its name; *A. Campbelli* is pale lavender; William Ingram has, relatively, very large flowers of great substance, rosy-lilac in colour, and rounded outline; it is quite one of the best. *A. Hendersoni* has deep violet flowers with others of a paler hue.

European countries, especially Germany. After many years we shall have one more such institution, whilst in the countries mentioned there are scores—and we grumble because we are rivalled!

"BOTANICAL MAGAZINE."—The May number contains coloured illustrations and portraits of the following plants:—

Aloe abyssinica (Lamarck).—A tree Aloe, originally brought from Abyssinia, by BRUCE, in 1771, and probably given by him to LOUIS XV. of France. The species is common in N.E. tropical Africa, at elevations of 3,000 to 9,000 feet. Its leaves are



FIG. 96.—PALM AVENUE IN THE ROYAL BOTANIC GARDEN, PERADENIYA, CEYLON (*OREODXA REGIA*). (SEE P. 296.)

R. Kewense still presents a magnificent spectacle; *R. fastuosum* is remarkable for its stamens, which are united into a petaloid cup within the true corolla, which is of a lilac colour; *R. Edgeworthi* is very lovely, but of straggling habit; *R. Sesterianum*, with thin papery-white flowers, is very beautiful; *R. Manglesii* is a noble variety, with globose tufts of bold white trumpets markedly recurved at the edges. *R. Countess of Haddington*, an old favourite, with white flowers flushed with rose. *Embothrium coccineum* is in bloom in the same house; and the curious *Bucklandia*, the two stipules of which, when in the bud state, are united, flat, and enclosing the young leaf, are now peeling off and splitting into two lobes, liberating the young leaf.

THE UNIVERSITY OF BIRMINGHAM.—Communications from Birmingham announce that on Saturday, May 5, Mr. G. H. MORLEY, the Registrar, received the Royal Charter for the Incorporation of Birmingham University. A meeting of the Court of Governors will be at once convened, and the University will be formally established. Mr. CHAMBERLAIN, the Chancellor, will probably preside at the meeting. The leading feature of this University will be that it is to be especially devoted to the study of, and instruction in scientific principles as applied to practice, in the case of chemistry, mechanics, engineering, and so on. In this way the institution will bear some resemblance to the numerous practical and scientific schools and colleges of the United States, and of certain

tufted, fleshy, lanceolate, acuminate, with strong recurved teeth at the edges. The flowers are yellow, deflexed in a close raceme. Kew, tab. 7,712.

Cotyledon Purpusii, already figured under the name *Echeveria Purpusii* in *Gardeners' Chronicle*, 1896, p. 698, fig. 123. In the Cambridge Botanic Garden it was uninjured by 12° of frost. Kew, tab. 7,713.

Campanula mirabilis (Alboff), see *Gardeners' Chronicle*, 1895, ii., 616; 1898, ii., 33, fig. 10, and p. 108; 1899, vol. ii., p. 275, figs. 92, 93. Kew, tab. 7,714.

Lilium Sutchuense (Franchet), near to *L. tenuifolium*, with spotted stems, linear leaves, reflexed orange segments with purplish spots. It is a native of Szechuen, whence it was sent to M. MAURICE

DE VILMORIN by the Abbé FARGES. Kew, tab. 7,715.

Rubus reflexus (Ker).—A Chinese species with Vine-shaped leaves, covered with rust-coloured down on the under-surface, and tufts of small white flowers from the aculeate hispid stem. Temperate-house, Kew, tab. 7,716.

THE EARL'S COURT EXHIBITION.—The Woman's Exhibition was duly opened on Saturday last, and there was a large number of visitors, especially in the afternoon and evening. The preparations in and out of doors are, as yet, far from complete. Mr. J. LAING, of Forest Hill, and Wm. WHITELEY, LTD., are responsible for the arrangement of the gardens. As yet there is not much to be seen save turf, a peacock and other topiary monsters, and a few beds filled with pink Pelargoniums. More flowers will be put in later on, and many of the beds are staked out for the inevitable carpet-bedding, which will be proceeded with as rapidly as circumstances permit.

GENERAL ANALYTICAL HERBARIUM.—Teachers and students alike will find the preparations made by Mr. BUYSMANN of Middelburg, Holland, of great service. They are well and carefully executed. To each dried specimen of a plant are attached dissections of the flower either dry or preserved in small flat bottles of spirit, so that they may be readily examined. Agricultural and horticultural students can have their wants supplied, and medical and pharmaceutical pupils will find them of the greatest value. It is only necessary to indicate for what purpose the plants are wanted. Those specimens that we have seen were excellent. M. BUYSMANN is aided in the case of tropical plants by the resources of the Buitenzorg Garden.

THE NEW GALLERY.—There are not quite so many flower-pieces pure and simple as usual in the Summer Exhibition at the New Gallery, Regent Street. We find a few vases and bowls of Roses of a more or less shadowy nature, and there are Hydrangeas and Lilac such as we have seen many times before. Mr. HAYWARD has tried his skill at that most unpaintable of flowers "Ageratum" (415), but has only succeeded in giving his picture an unfinished look, the innumerable delicate details of the flower being unrepresented in any way on the surface of the canvas. Mr. SPENCER STANHOPE in his "Expulsion" (58), has given us a wonderful carpet of flowers, but we doubt their appearance in the garden of Eden, wherever it may have been, in the form in which he has represented them. The Pansies, not known till the beginning of the century, for instance, show signs of a lengthy period of cultivation, though they are far from being florists' flowers, so do the Roses, Wallflowers, Tulips, Narcissus, and Starch Hyacinths, though possibly the artist intended to suggest their primitive condition by painting all as of dwarf habit. Of the richly-worked armour of the expelling angel it is not within our province to speak. Miss ANNORA BROMLEY MARTIN in "Severn Side" (206), has drawn us a pleasing study of wild flowers, but many of her wild Roses have but four petals. The scattered petals at the child's feet suggest that the flowers once had five, but it is to be questioned whether wild Roses retain four after having lost one of their petals. Do they not fall simultaneously, or nearly so? There are several garden-scapes in this exhibition, notably Sir JAMES LINTON'S delightfully conscientious "Opening Scene from the Decamerone" (83). Here we have the typical Italian garden with its Cypress hedge, light in contrast with the darker and untrimmed trees in the background, the Roses, the Hollyhocks, and the delightful group of brocade and fur-clad youths and damsels entranced by the tale that is being told to them by the maiden on the marble seat in front of the hedge. They certainly have no fear of the approaching plague, or of any other disturbance to their peace of mind. The tendency of the artist in many of the garden scenes is to get the flowers in the immediate foreground too large and the

colours too brilliant to the exclusion of the goodly proportion of green that is to be found in every garden, however crowded. We must not look botanically at the staff borne by Mr. SOUTHALL'S "Crystofore" (92), which, though a stout Ash sapling, has blossomed out into white Lilies at almost every joint.

STOCK-TAKING: APRIL.—The Trade and Navigation Returns for the past month form a volume of some 180 pages, and all pregnant with interest, even for the general reader. Once more a continuation of progress has to be reported, our imports having gone up on the month by £3,264,854; the figures for last month being £42,621,876, against £39,357,022 for the same month last year. Our usual excerpt from the "summary" table runs as follows:—

IMPORTS.	1899.	1900.	Difference.
	£	£	£
Total value ...	39,357,022	42,621,876	+3,264,854
(A.) Articles of food and drink—duty free ...	12,977,920	14,291,120	+1,317,200
(B.) Articles of food & drink—dutiable	1,951,582	1,608,620	—142,912
Raw materials for textile manufactures ...	6,338,883	7,830,076	+1,491,193
Raw materials for sundry industries and manufactures	3,034,956	4,804,304	+1,769,348
(A.) Miscellaneous articles ...	1,328,463	1,280,487	—47,976
(B.) Parcel Post ...	98,055	88,555	—9,500

Allowing for enhanced values, there is an increase in the bulk of duty upon articles of food, the other large increase being in materials for textile fabrics, and for fabrics of a miscellaneous character. We come now to the record of fruit, roots, and vegetables imported, which is, as usual, interesting to us all. The record is as follows:—

IMPORTS.	1899.	1900.	Difference.
	Bushels.	Cwt.	Value.
			£
Fruits, raw:—			
Apples ...	148,878	89,601	+9,827
Bananas... bunches	.....	111,738	+49,623
Cherries... ..	24	.....	—25
Grapes ...	1,626	1,519	+1,859
Lenons ...	210,326	72,310	—23,772
Nuts—Almonds (cwt.)	6,496	5,041	—5,806
Others, used as fruits	.....	64,718	+1,474
Oranges ...	1,028,171	614,399	+26,308
Pears ...	957	106	—386
Plums ...	.....	45	+157
Unenumerated... ..	86,029	5,634	—34,919
Vegetables, raw:—			
Onions ... bush.	699,183	583,890	+2,517
Potatoes ... cwt.	514,748	868,936	+46,169
Tomatoes ... "	.....	44,746	+49,285
Vegetables, raw, unenumerated ... value	£249,867	£74,269	—75,098

Of course, the statement is, to a large extent, incomplete, owing to the substitution of weight for measure; but "values" may be sufficient. The imports for the four months just expired show an advance over those for the same period last year, amounting to £12,143,324; the past month's foot-up at £169,694,767, against £157,551,443 for the same period in 1899. The

EXPORTS

for the month show that the progress noted in the three last stock-taking notes still continues. The figures for April are — £22,645,147, against £19,457,526, a gain of £3,157,601. All sections participate in the increase, with the exception of animals living. The same remark applies to the figures for the four months in that time, this year the total foot-up at

£94,765,499, against £81,511,587 in 1899—a gain of some £13,253,982. It is to be hoped that no enhancement on the value of coal, &c., may interfere with the progress so markedly illustrated above.

TURNIP-FLEA.—One of the best means to use against the ravages of the Turnip-flea (*Haltica nemorum*) is the well known superphosphate of lime; bone-meal, sifted fine, has very good results, strewn over the soil, better generally than wood-ashes and soot. In the height of summer, Turnips should be sown in partially-shaded sites, and the soil be well soaked with weak farmyard manure-water; this last operation being very necessary when shady positions cannot be found in the garden.

MATHIOLA CORONOPHOLIA.—This is a singular species, now in bloom on the rockery at Kew. It has hoary pinnatifid leaves and violet flowers, with undulate petals.

KEW AND THE BRITISH MUSEUM.—A Committee has been appointed by the Lord's Commissioners of Her Majesty's Treasury, "to consider the present arrangements under which botanical work is done, and collections maintained by the Trustees of the British Museum, and under the First Commissioner of Works at Kew, respectively; and to report what changes (if any) in those arrangements are necessary or desirable in order to avoid duplication of work and collections at the two institutions."

BEAUMONTIA GRANDIFLORA.

ALTHOUGH we have before figured a full-sized spray of this noble plant as grown at Panshanger, see *Gardeners' Chronicle*, May 8, 1886, p. 593, such a specimen might discourage growers with limited means, and therefore we now lay before our readers a reproduction of a photograph (fig. 97, p. 299), sent us some time since by Messrs. Maries, of the Mythrop Nurseries, Lytham, Lancashire.

The plant requires to be grown in a warm greenhouse or stove. It does best planted out and allowed to cover a trellis, but it may also be grown in a pot.

HOME CORRESPONDENCE.

THE ROYAL HORTICULTURAL SOCIETY.—I quite agree that the Royal Horticultural Society ought to try and acquire a hall of its own in a suitable position, before they spend any money in buying land to replace Chiswick, which they propose to abandon. The Drill Hall is, as I have always stated, not a proper place for the exhibition of valuable plants, and I hope that the scheme which has been proposed will be definitely given up. There is no doubt a difficulty in finding a suitable situation for a home of the Royal Horticultural Society, but I believe that if the Council decided to put their shoulders to the wheel, and earnestly desired to place the Society in a becoming position, they would certainly succeed. I am sure that nothing would be more pleasing to the bulk of the Fellows, than an announcement by the Council that they had secured a proper site, and they ought to do so before the Centenary year of the Society. H. W. Schröder, *The Dell, Egham*.

THE NEW CHISWICK.—Since it now appears certain that by order of the Council, and by the votes of the Fellows at the last meeting, that Chiswick must go, it will appear to some futile and inexpedient that the matter be referred to again. Still, at the risk of being considered out of order, I would beg your indulgence whilst I give expression to a thought or two in favour of the old garden. The sum and substance of its offence is its position near London, with its clouded, and to some extent deleterious atmosphere, and the plea that the soil is poor and worn out. With reference to the former, I would observe that no aspect of the management of the Royal Gardens, Kew, has been so favourably commented on during the last twelve or fifteen years, as the great improvement that has taken place from a cultural point of view in that

far-famed garden. Yet as the crow flies, Kew is only distant from Chiswick little more than a mile! As regards the exhaustion of the soil, Chiswick is about the same distance from Syon House as it is from Kew. The garden at Syon, I believe, is as old, if not older, than the one at Chiswick; and the soil, from all I have heard, is no better in quality. Yet judging from the merits of the produce exhibited from time to time from Syon at the Drill Hall, no one can surely say that this garden is played out. May I suggest that the superintendent of the Chiswick garden (in whom all who know him have every confidence) be given a freer hand, more liberal and generous support in the way of labour, manures, &c., and I am satisfied that the plea of the soil being worn out, &c., would soon be non-existent. The more the question of a new garden is considered, the greater seem the difficulties with which it is surrounded. To buy and take in hand a matter of 50 acres of agricultural land, let it be situated in what district it may, and convert it into a garden worthy to represent the best aspects of British horticulture,

home and foreign commercial horticulturists, and that in a far more precise, complete, and satisfactory way than can ever be the case at limited Chiswick. Moreover, all, or nearly all, of the satisfactory results of these trials are brought before the Society at its meetings in London for its approval or rejection, free of any cost to the Society. I would plead that the question of a new garden be deferred for the present (as the lease of Chiswick has a long time to run), and that the centenary of the Society be celebrated in some more modest form, as for instance, by a great exhibition—in London, if possible; if not, at the Crystal Palace. Who knows but that, before many years are over, we shall again have introduced an International Exhibition, which in its magnitude and grandeur will far out-distance the one now being held in Paris, at which a Palace of Horticulture worthy of the Empire would form a part, and to which it might be given in perpetuity by an enlightened Government, under the trusteeship of the Royal Horticultural Society, or some other responsible body. O. T. F.

of the Fellows of the Society. The meeting was invited to take the unseen nine pages "as read;" but thanks to Dr. Masters and Sir William Thiselton-Dyer, every Fellow of the Society will now have an opportunity of considering the bye-laws. Another attempt was made to get the meeting to decide once and for all, that the historic gardens at Chiswick should be given up for ever. It is true the meeting was invited to adopt the "purchase of a freehold site in the parish of Limpsfield, Surrey," without further notice or discussion, to "authorise the Council to take the necessary steps for acquiring the said site, and for developing new gardens thereon." But no information was given as to the cost of securing such an unsuitable site. The four experts who reported upon the site were unanimously agreed that notwithstanding its beautiful situation, the soil was heavily water-logged, and the cost of drainage would be considerable. Little do the Fellows know the cost that would be entailed by forming a new garden in such a situation. Even Chiswick in less than eight years from its foundation landed the society in a debt of over £20,000, and as a matter of fact it has never yet paid its way. On an average a net loss of about £1,400 a year is entailed by Chiswick. Its acreage is about 11½ acres, and the loss upon such a place as Limpsfield would be at least £5,000 a year (after about £50,000 formation expenses) for the up-keep of its 50 water-logged acres. In 1860, the Council of the day tried to stifle Chiswick. They said it was "inaccessible" (although 24,000 people used to go there when there were neither trains nor trams, and that it was "badly constructed." These were the chief arguments used when they wanted to secure the white elephant that the commissioners of the 1851 Exhibition had for sale in the twenty acres of ground at South Kensington. Then the council of the day did not object to get nearer the fog and smoke of London, instead of away from it; nor did they scruple to ask for and obtain £50,000 of public money, every fraction of which seems to have been mispent; or out of every penny that was earned the 1851 commissioners managed to secure three farthings. Until it can be shown that the Fellows of the Society have in view a better and more easily accessible place than Chiswick, it would be madness to play fast and loose with the Society's finances, which at the present time do not exceed £9,000 all told. At the present time Chiswick is at least as well-favoured as Kew, which is bordered on the Brentford side by large gasworks, soap factories, coal wharves, &c.; and on the Richmond side also by gas factories and other extensive buildings: Syon and Gunnersbury are also close by. Metropolitan.

THE CHISWICK TRIALS.—With the discussion of so important a matter as the removal of the Royal Horticultural Society's experimental gardens from Chiswick, it was only to be expected that the question of the utility or otherwise of the trials conducted there would sooner or later be introduced. While I am of opinion that with the limited space at its disposal the Society has done as much as could be expected, I am equally of opinion that so far as Peas and other important vegetables are concerned, there has not been, during the past seventeen years, such a series of comparative trials in any one subject as could enable an expert to say that this, that, or the other novelty sent for trial was superior to or distinct from some other variety in existence. I fully endorse the remarks in your last issue as to the necessity of testing a large number of the varieties already in commerce alongside those submitted for the consideration of the Committee, in order to enable these representatives of the Society to recommend awards to *bona fide* novelties only—a matter of impossibility while the present system continues. Mr. A. O. Walker in his letter (see p. 284) raises another important point bearing on the same subject. He says:—"These (the comparative trials of vegetables) are of little value, for every gardener knows that the best variety in one garden is not necessarily the best under different conditions of soil and climate." It not infrequently happens that a new Pea is said to possess the merit of "resisting mildew to a remarkable degree." Sow this Pea under ordinary conditions at Chiswick or in Surrey, as the case may be, and in two seasons out of three there would be little opportunity of judging its merits in this respect. Sow the same Pea, however, in Yorkshire or Lincolnshire, and its claims would be put to a much more severe test. It seems to me,

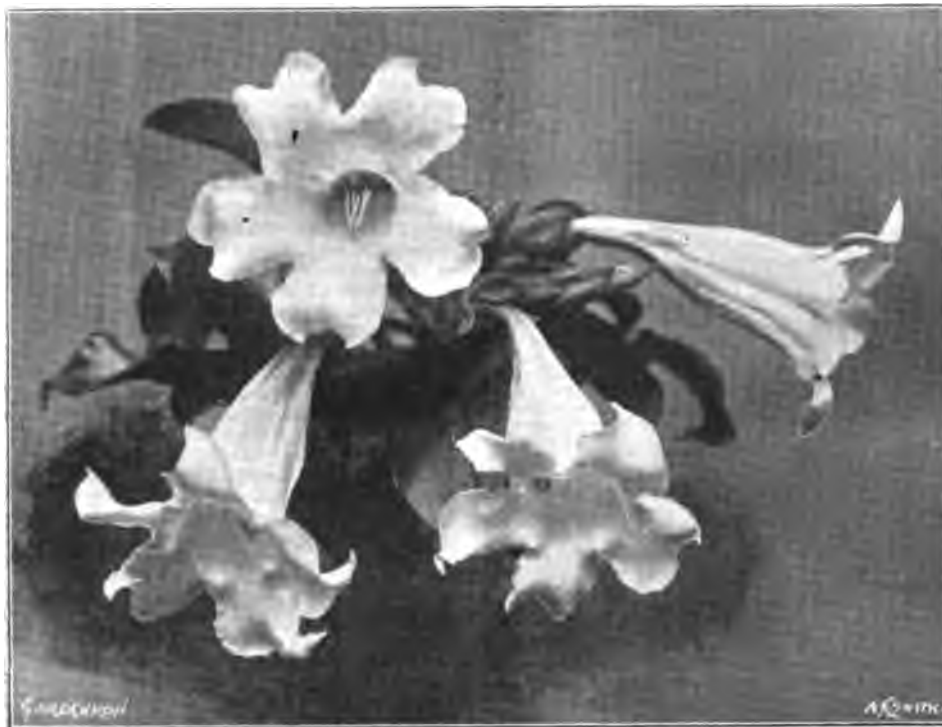


FIG. 97.—*BEAUMONTIA GRANDIFLORA*, FROM MESSRS. MARIES' NURSERY.
ABOUT HALF-SIZE. (SEE P. 298.)

would cost at least a sum of £40,000 before it was completed; and to this must be added an annual charge for up-keep at least from £2,000 to £3,000, and from which enormous expenditure, comparatively little or no income for the sustenance of the Society would be derived. Before committing the Society to so vast and risky an undertaking as this, it is not too much to ask the Council to put some tangible and well digested scheme with plans, &c., before all the Fellows of what is proposed to be done, before the next meeting. How much the completed scheme is likely to cost? where the money is to come from? and what is of more importance than all—what does the Council propose to teach and demonstrate in the new garden? If it is proposed to carry out the work of the new garden on the same lines followed of recent years at Chiswick, then, in my humble opinion, as far as benefiting the rising generation of gardeners is concerned, the idea is a phantom, and the expense and risk ought not to be run. As regards some of the work attempted at Chiswick, such as the trial of new flowers, fruit, and vegetables, it has been pointed out that this work is already carried out on a most exhaustive and extensive scale under the superintendence of experts and specialists by our great

THE ROYAL HORTICULTURAL SOCIETY'S MEETING.—Everyone interested in horticulture in the United Kingdom will regard the meeting of the Royal Horticultural Society on April 25 as one of the most historic on record. Never before have matters of more serious importance been brought before the horticultural public. Everyone felt this, and many Fellows of the society from far and near, who had been up to London the previous day, attended at great inconvenience, to look after the interests not only of the society which they support with hard cash, but also in the interests of British horticulture generally. And it was well they did so, for in the whole history of the Royal Horticultural Society there has never been such an attempt made to rush matters of vital importance without giving the slightest opportunity for discussion. Although the meeting was large and representative, it was by no means so large as it would have been had the meeting been arranged for the previous day, when many more keenly-interested Fellows from all parts of the country were in town at the ordinary meeting. An attempt was made to prevent any discussion or amendment on the nine foolscap pages of print occupied by new bye-laws, which literally had not even been seen by half-a-dozen

therefore, that if the Society—unable as it is at the present time to find room for a sufficient number of trials to make a fair comparison—could have an opportunity of duplicating its trials by the side of a collection containing all the new and old varieties, it would—if such an opportunity could be found in a part of the country where soil and climate were altogether diverse to that of Chiswick—remove to a great extent the difficulties referred to by both your correspondents. We have in our grounds this year over 600 trials of Peas, including latest novelties and old varieties, and other things in similar proportion, and if the Society decides to stay at Chiswick, and would like to increase the utility of its trials, I shall be very pleased to give up a portion of our grounds for the purpose, carry out the work in connection, and entertain the Committee when on their visits of inspection. *B. J. Neal, General Manager to W. W. Johnson & Son, Ltd., Boston, Lincolnshire.*

THE ROYAL HORTICULTURAL SOCIETY.—I entirely concur in the opinion expressed by Mr. Drury in your last issue as to the widespread financial troubles consequent upon the Baring crisis being the cause of failure in raising sufficient funds for the horticultural hall scheme, and that before 1904 it might be revived with a great probability of success, owing to the marvellous prosperity of the country, and the increased numbers and influence of the Royal Horticultural Society. Undoubtedly, the first duty is to secure a fitting home for the Society. Impending military changes may interfere with our use of the Drill Hall, and a mistaken policy may find the Society without a place of meeting, and without Chiswick. The communications from "A Northern Fellow," and "From the North," will also well repay perusal. There is a view, however, that has not been sufficiently expressed. If the abandonment of Chiswick be advocated on the ground of the hopelessness of cultivating it by reason of London fogs, deleterious fumes, and exhausted soil, what a discouragement to horticulture in the suburbs of this and other large cities and towns. Let anyone draw a radius from the Bank of England that shall include Chiswick, and see what an area will be included within the circle. Is horticulture to be given up within it? All connected with horticulture are interested in this question. The fact is, too much has been said about fog, &c. The beautiful flowers, fine vegetables, and excellent fruit raised at Chiswick, the bright flowers in the public gardens and parks, the trees on the Embankment, in the city, and even in dingy Stepney, prove what can be produced within the metropolitan area. No doubt some kind of Orchids and winter-flowering hot-house plants suffer from fog, but vegetation in general is not active during the months when fogs occur, and to one exotic that shows their evil effects, there are countless flowers and fruits that in their dormant state are unaffected by them. To an old Londoner, the air is perceptibly purer through the Smoke Acts having been put in force, and still more from the use of gas, oil, or coke, for heating purposes instead of coal. The improved current of the Thames, consequent upon its embankment, and the greater sweetness of its waters, are encouraging facts, and tend much to improve the atmosphere, so that river and streets alike are more agreeable to dwellers in town than they were in former years. *W. Roupell.*

THE OLD AND NEW CHISWICK.—Horticulturists throughout the Empire are vastly indebted to Mr. Arthur Sutton and others for securing time for the discussing of these and other questions deeply affecting the popularity and prosperity of the Royal Horticultural Society, and the advancement of the science and practice of horticulture throughout the world. Mr. Sutton's impartial report on the Chiswick trials will vie in practical importance with that on the Limsfield site in leading to sound conclusions. The Council have also acted wisely in publishing the reports of others in their possession, though it is difficult to see how the promised attractions of ample water power for lake or bog gardens at the New Chiswick could ease the collar on man or beast, on that steep perpetual rise of three miles from Oxted to Limsfield. Nor does it seem that the demand for new gardens is at all pressing or urgent at the present moment. We are still four years from the centenary of the Society, and have twenty years' lease of the old garden at Chiswick to run. The most pressing need of the Royal Horticultural Society is not a new garden, but a new hall for its great exhibitions and general meetings—in a word, a home for horticulture in London abreast of our needs and our reputation. But for the Baring Crisis we should have had this some years since. It would be much easier to have it now, at a period of great commercial prosperity—unless, indeed, the South African War should hinder the erection of such a Temple of Peace. Possibly, for such a purpose, the government or the London County Council might be able to contribute something substantial towards reducing the ground-

rent for such a great national educational purpose. There are many Fellows who have standing over this project of a suitable horticultural building, and with a gross cost of £25,000, and have ventured to think that £15,000 might provide for all present wants, and prove as timely and fit a memorial for the centenary of the Royal Horticultural Society. Educational, cultural, collecting, or other work might follow either at Chiswick or elsewhere. The hall of horticulture should come first, as it is most urgently needed. It would also stimulate and strengthen horticulture, and render more distinguished services in all other directions. Following Mr. Sutton's exhaustive reports on the Chiswick trials, will you allow me in a few sentences to enable the Chiswick trials to speak for themselves in the *Journal of the Royal Horticultural Society* for November, 1900. It is not a little surprising, in view of recent utterances, that in the twenty-three pages of these last reports on the Chiswick trials not a word has been said about land exhaustion or the garden being played out, or even about air pollution. In all the trials recorded between pages 166 and 143, there is only one case of failure (page 173) of Cauliflowers, which bottomed prematurely from drought in spite of constant watering. With the water mains so handy, and temporary shade within reach, perhaps the general failure should have been prevented, as it mostly is—in fact, must be—in private gardens. But my point is that the Chiswick trials, as far as their restricted character allowed, were fair, and showed little or no trace of soil exhaustion, or air pollution. On page 180 we read of fifty-seven stocks of dwarf French Beans, sown on a warm border on May 3. With one or two exceptions the seeds germinated well, and the plants cropped freely. Page 163: Of the forty-six stocks of Peas sown on March 10, it is said the whole were sown on ground that had been trenched and well manured with cow-manure; and, with one exception, the whole grew well, and cropped freely. Page 167: Twenty-five new varieties of Tomatoes were grown against twenty-seven of the older ones for comparison. All sown March 21, and the plants fruited in 10-inch pots. The hot season suited them admirably; all made good growth, and being entirely free from disease. Not a whisper about smoke, fog, or fumes. Page 169: Seventeen sorts of Lettuces, sown February 27 in boxes, transplanted into the open when large enough, proved free of rogues, and the growth in almost all cases being good. Page 170: Forty-six varieties of Potatoes were sent for trial, and twenty-five of older and popular sorts tested against them. The ground had been specially prepared for the crop, and in spite of the drought, the majority of the varieties grew well and produced good crops. We have also favourable reports of Onions, Beetroot, Parsnips, Gourds, Runner Beans, Broad Beans, Cucumbers, Pumpkins, and so on. Page 175: Of the trials of Dahlias, we find that 127 stocks of Pompon Dahlias in well worked and liberally-manured ground, planted between June 5 and June 22. The season proved unprecedentedly hot and dry, but notwithstanding this serious drawback, the plants grew well and many of them flowered abundantly. The Floral Committee examined the collection on three occasions, and highly commended fifteen varieties. And yet what no fellow can quite understand is how, in the teeth of this official testimony in favour of Chiswick as a seed testing crop-proving garden, the Council and Members should show such eager haste to vote Chiswick an effete asset, and its good old gardens a played-out polluted encumbrance. *From the North.*

THE LIMSFIELD SITE.—So much has recently been written in these pages respecting the proposed site at Limsfield for the new Chiswick, that I have to apologise for penning anything further about it. But a visit to the place gives experience and capacity to express opinions, of which those who have not, cannot possess. Having seen, I come with ease to the conviction that the admirable reports furnished by such capable experts as Messrs. Bunyard, Paul, Poupert, and Beckett, are correct in every particular, and rather mild than otherwise. The great fact which struck not only myself, but my friends, Messrs. J. Wright and G. Gordon, was the comparative dryness of the ground in almost every direction. That showed how, in spite of its comparative retentiveness, it is yet porous, and dries rapidly. A marked feature is the fact that Oak is almost alone the chief timber on the estate, and that is of the healthiest and cleanest description—none could be better. There was on all descriptions of tree or hedgerow wood, an entire absence of moss or lichen, showing that the soil was in no sense sour. Whilst soils are varied, sites or aspects are varied also. Some have a sharp south fall, some are level, some trend slightly to the north-west and west. There are four fields under pasture, and of turfy loam. Suited for Vines, Peaches, Melons, or general potting, it would be difficult to find better in all the county of Surrey. Generally the arable land is free from weeds; that is particularly so in the case of the two cornfields at the lower side, one of which will have presently a splendid Wheat-crop; and in the large area devoted to Hops. It is also so in the case of the upper portion of the large arable field on the upper side of the estate; but the lower portion shows perennial Thistles and Equisetum in abundance. These weeds show a deep retentive soil that badly needs draining; but with proper drains, and the free use of the hoe for a couple of seasons to cut off these weeds whilst young, they would soon die out. A portion of this land would make splendid coppice, for poles, brushwood, and sticks would be needed in abundance. But in spite of the comparative dryness of the surface-soil, Nature has furnished the estate with a good supply of water, every drop of which can be utilised to form a splendid aquatic garden, oyster-beds, and Watercress-beds; for in a national horticultural garden everything must be taught. It is in such a place fifty times better to have rather too much water than none at all. All soils, even if the stiffest, turned up by the plough, crumble to pieces finely after some few hours' drying. Practically, the soils and situations on the estate seem finely adapted for the successful culture of everything thought desirable in a great garden. The site is truly an ideal one, for behind it rises a range of lofty sand-hills, topped by trees, which protect it in a remarkable way from cold easterly and northerly winds. Behind it also is a vast common that will always be an open space, and another large common is on its south-west border. The district is generally agricultural, but the exceeding beauty of the situation and surrounding country will doubtless in time attract many more good-class residents; but small houses will never be erected near. At present houses are very few near Limsfield, but about Oxted Station they are being built rapidly, and such as will meet the requirements of well-to-do

people. One great value of the site is that it is not visited by the London fogs. These do not pass over the high lands on the north side of the site. Practically the atmosphere is more from the sea coast, than from the metropolis. From an æsthetic aspect, the sight is one of singular beauty. On its highest parts, near the Carton House, the view over the country is a splendid one, and at no time repay a visit. The bird-eye view of the country in the foreground can hardly be less than 100 square miles. Were the proposed gardens to be ultimately fixed here, a visit to Limsfield would become a red-letter day to the Fellows, and with some refreshment chalet or other accommodation erected on the small home meadow, close under the lofty sandbanks at the apex that would make such a grand rookery, it would be difficult to conceive of a more beautiful or attractive spot. Where the Council are going to find a site more fitted for their purpose in so many ways, and yet so near London, I do not know. Once converted into a great and an attractive garden, the place should be termed Paradise, for it would then be a lovely spot. Whilst there are many trains daily to and from London and Oxted, it turns out that there are some down in the morning by which return tickets are obtainable, third class, for 2s. That is cheap. The ride out with a rather slow horse takes, to the Carton House, 20 minutes, and the return is rather quicker. Were the site purchased, no doubt the railway company would make a siding for manure, &c., about half a mile distant. *A. Deas.*

HORSES INJURING THE BARK OF TREES.—In reply to Mr. Jas. Gibson's inquiry in the *Gardeners' Chronicle*, I would recommend that he should try strewing about freshly-cut branches and limbs under his avenue of Elms and Limes, which may take off the horses' attention from the standing trees. When horses are well fed, and take to barking trees, it is often a sign that some element is lacking in their food which bark supplies, in the shape of a tonic or astringent. German foresters put a certain amount of faith in providing salt-licks, where deer give a good deal of trouble in the same way, and the following powder placed in boxes is said to be efficacious:—25 per cent. gall-nuts, 25 per cent. Oak-rind, 20 per cent. Aniseed or Fennel, 10 per cent. Lovage, 10 per cent. Florentine Iris, 10 per cent. Feaugreek, mixed with half the quantity of common salt and bone-meal. I should say ground bark and salt would answer the purpose equally well in providing what is required; but it is doubtful if anything will entirely prevent the habit. Where plenty of bushes, brambles, &c., exist, horses seldom do much damage to trees, and those at work during the day, and only turned out at night, are less destructive than colts or broodmares, which pass a good deal of time in idleness, and with a stomach filled with grass. *A. O. Forbes.*

CYCLES AT KEW.—The cycle shelter opened this season close to the main entrance to Kew Gardens comes as a "boon and a blessing" to many a rider, judging by the goodly show of machines that we found there on a recent occasion. For the modest sum of twopence we can now enjoy the gardens to the utmost, knowing that our valued machines are in safe custody; while, if a sudden shower should come on, it is pleasant to think that we need run no risk of a damp saddle, or have any extra cleaning to do on reaching home. Our machines are housed in the shelter in the most business-like manner, a ticket, accompanied with great civility on the part of the custodian, being given to each rider. There are some beautiful sights to be seen in the gardens, and they are in their full freshness of spring. Were it not for occasional pungent whiffs from over the river, we might well think ourselves a hundred miles from London. Enough remains of the Magnolias to show how full of bloom they have been, and some of the earlier Rhododendrons are a blaze of colour. The Narcissus-beds are a "sight for sair e'en," and the air is heavy with their perfume. It is delightful, too, to note the downy croziers of the Ferns pushing their way up through the brown, dry fronds of last year. The various specimens of Pyrus and Prunus are mostly in full beauty, the shades of pink and rose-colour being a real delight. On seeing these we can understand the Japanese Plum-blossom festivals, and the enthusiasm for the beauty of the trees that prompts them. On the rookery we find that charming little Primula roses in full perfection; Aubrietias, and some of its relations, are cushions of flowers; there are some effective Lencojums, and some particularly handsome varieties of Trillium. Not one of the least of the attractions of Kew is the animal life, of which we get glimpses as we stroll about. The squirrels, the blackbirds, thrushes, starlings, robins, tits and wagtails, the water-birds on the lake, the marauding, sugar-loving sparrows near the tea-house; the pirate rook, who lies in wait and steals from the sparrows, all have their charms, and make an unscientific afternoon at Kew a refreshment alike for body and mind. *Visitor.*

AZALEA ENDTZ.—May I explain to you that I am the raiser of this variety, which obtained favourable opinion from you. Your remark, "Possibly it is not such a good grower," was natural after seeing the plants; but I may draw attention to the fact that they were the parent-plants, so that they had been until last summer heavily pruned, for nearly every shoot upon them was cut off to be grafted; therefore, most of these plants suffered a good deal from such usage; but if you could see in my nursery plants one, two, and three years' old, you would be surprised by their strong growth. This variety, in my opinion, excels *Azalea Anth. Koster* in growth, as the tendency of it is to form a regular well-balanced plant; whereas the *Azalea Anth. Koster* is a faster-growing plant, but very upright, so that a plant three years old is a very small one in breadth, but a very large one as to height. Mrs. A. E. Endtz at the same age is not such a tall plant, but is much broader. *L. J. Endtz, Boskoop.*

PROTECTION OF TREES AGAINST HORSES.—In answer to an inquiry last week by Mr. Jas. Gibson, I may say that, having had considerable trouble from horses barking trees, and having tried several preparations, I was thrown on my own resources, and after trying two or three mixtures, I give preference to the following, which we have been using this winter:—Dissolve in an iron pail on a slow fire, or better still, hot plate, $\frac{1}{2}$ lb. of Bitter Aloes to 1 gallon of water; stir in fresh cow-dung to the consistency of paint; to this add, while hot, a pint, or a little more, of tar (Stockholm, I used), mixing thoroughly; this mixture to be applied to the trees warm as far as possible, using for the purpose a long-handled tar-brush. These are roughly the proportions; quantity, of course, would be regulated by the number of the trees. This mixture adheres to the trees, does not soon get dry and hard, and is not washed off by the rain. *J. W.*

TULIPA GREIGI.—I was much interested in the paragraph which appeared in the *Gardeners' Chronicle* on *Tulipa Greigi*, from the pen of your correspondent, G. B. Mallet. Strange to say, there is in these gardens a large plant such as your correspondent mentions, and the same size, viz., 18 inches high, the inner segments $4\frac{1}{2}$ inches long, and 3 inches wide, the flower when expanded being 8 inches across. It is one of a new importation made last year. The bulbs were planted in patches on a rocky facing south, and the plant mentioned is the only one of that size. *Thomas Foster, Scampston Hall Gardens, Rillington, Yorkshire.*

A NOVEL WAY OF FORCING RHUBARB.—Some time ago, whilst calling on a friend of mine, a large farmer in this district, I was invited to look round his farm and stock. After spending some considerable time looking through the different departments, we came to a large byre, containing about twenty-two fine cattle which were almost ready to despatch to the auction mart, and thence to the butcher. In front of the cattle was a square passage, from which to get back and forward with hay, cake, &c. On reaching the end, the longheaded farmer began to "show me something," as he termed it, and removing some straw in the corner, revealed three beautiful roots of Rhubarb, from which he informed me he had been pulling for some considerable time. The roots were laid in mould, and the only assistance they got was the warm breath from the cattle; and at the time I saw it, there was still sufficient to supply the kitchen with yet another "Rhubarb Cake," indispensable to the farmhouse in these parts. *Arthur Smith, Edenhall Gardens, Cumberland.*

BRITISH FORESTRY.—In the issue of the *Gardeners' Chronicle* for April 21, Mr. J. Simpson has criticised my article on "Game Preserves," published in the issue of April 14. Most of Mr. Simpson's contentions refer to matters with which I have not dealt in my article, and into these I cannot follow him. I particularly stated that the desirable method of treatment depends on local conditions, and the kind of game to be preserved, so that only concrete examples can illustrate how to proceed in each case. As such an example, I described the sylvicultural treatment of pheasant preserves, this being on the whole a simple case. The principal part of Mr. Simpson's criticism refers to preserves of pheasants and rabbits, a case with which I have not dealt at all. The fact is, that where rabbits have a free run, profitable forestry

practically ceases, unless such woods are treated as high forest stocked with species which develop a rough and unpalatable bark, and are protected by wire-netting until that time has arrived. Referring now to Mr. Simpson's remarks, so far as they refer to pheasant preserves, I find that he makes much capital by insisting on the introduction of evergreen species amongst the underwood and standards. But a reference to my article shows that the introduction of such species is not excluded, since I stated that to Ash and Hazel in the underwood, any other species may be added to meet special requirements (meaning for the benefit of the pheasants). Again I distinctly mention the introduction of a number of Spruce amongst the standards, "as these are very desirable in pheasant preserves." Hence, Mr. Simpson is really fighting imaginary windmills like the well-known Spanish knight. Moreover, he entirely overlooks that I chiefly deal with the sylvicultural aspect of the question, and an orderly treatment of pheasant preserves, leaving it to the proprietor to hold the balance between the forester and gamekeeper, and to decide in how far the one or other consideration shall take precedence. Mr. Simpson says 20 or 30 feet high coppice will not do, and I dare say this is so if it exists throughout; but my main point is that each block shall contain coppice of different ages, from one to twenty years old, with a few years difference of age between the several age-classes. This being so, the beats can surely be so arranged that the pheasants rise over the younger parts of the coppice, not to speak of the broad rides which such preserves always have. Unless some give and take is allowed between the contending requirements, of course, nothing can be done to derive a suitable revenue from such preserves, and both Mr. Simpson and I had better save our ink, and the *Gardeners' Chronicle* its space, for other purposes. I have also received, privately from a gentleman, some criticism of the anticipated returns to be derived from pheasant preserves managed on the plan detailed in my article, and as Mr. Simpson refers to the same subject, I may here add a few remarks on the point. It is very unfortunate for English forestry that a cry of "theoretical speculation" is at once set up, if anyone puts forward views which do not agree with the past experience of him who shouts. In the present instance my correspondent maintains that the income estimated by me is quite out of the question, because he has never seen or heard of a forest in this country which has yielded it. Of course he has not, because if he had, there would probably have been no need for my writing on the subject. And yet the returns given by me were based upon those derived from an actually existing forest, which I have examined more than once, and of which I hold a statement of receipts and expenses extending over a considerable number of years. Hence I repeat, that land fit to produce good Oak, Ash, and Larch, treated in the careful way indicated in my article, will ultimately yield a net return of £2 and upwards per acre a year. I shall be happy to communicate the details to any of your readers who take an interest in the matter; and I may add, that I visit that forest every year with my pupils. Just one more point:—There are people who compare a net income of, say, £2 an acre from woods, with the rent to be obtained by letting the land only. This is a great mistake. The £2 represent the interest on the capital value of the land plus the value of the growing stock of timber, which must always be kept on the ground in order to realise that annual income; whereas the rent of bare land represents the interest on the capital value of the land only. The former capital, in the example given in my article, would be about three times that of the land only. *W. Schlich, Cooper's Hill, April 26, 1900.*

THE WEATHER IN WEST HERTS.

ON several occasions during the past week, and particularly on the 6th inst., there appeared every prospect of continued heavy rain. Unfortunately, beyond a few passing showers, yielding only sufficient moisture to wet the surface of the ground, no rain fell here. In fact, for more than a week no rain-water at all has come through the $2\frac{1}{2}$ feet of soil in either of my percolation gauges. Both the days and nights were as a rule moderately warm, and at no time did the exposed thermometer descend at night quite as low

as the freezing-point. As regards the temperature of the ground, the soil at two feet deep is now about one degree warmer, and at one foot deep about two degrees warmer, than is seasonable. The winds have come mostly from some westerly point, and have been, with one brief exception, of moderate strength. The exception referred to occurred at one o'clock on the afternoon of the 3rd, during the passage of a sharp squall of hail and rain, when the wind rose suddenly to the force of a gale, and the temperature of the air in less than five minutes fell as much as twelve degrees. A Blenheim Orange Apple-tree growing in my garden, came first into blossom on the 7th, or on the same date as last year, but two days later than its average date of flowering in the previous fourteen years. *E. M., Berkhamsted, May 8.*

THE BULB GARDEN.

THE CROWN IMPERIAL.

THIS beautiful old garden plant is extraordinarily fine with me this year, the growths being very strong and stout, and somewhat taller than usual, with good crowns. I have heard sometimes of this *Fritillaria* not flowering well with some growers. I have five rows of them, one with 173 heads, 66, 53, 65, and 57. They are left in the ground year after year, and they are always left to ripen, which I believe is the best way to secure flowers from them. Some cut the stems off as soon as flowering is past, which I consider an error of judgment. *J. C.*

SOCIETIES.

ROYAL HORTICULTURAL.

MAY 8.—The last of the fortnightly meetings that will be held before the Temple Show took place on Tuesday last at the Drill Hall, James Street, Westminster. Contrary to the circumstances of the previous meeting, there was ample space on this occasion for the proper display of all exhibits.

There was a very satisfactory display of Orchids, and the Orchid Committee recommended the awards of two First-class Certificates, two Botanical Certificates, and four Awards of Merit. An exhibit of *Vanda teres* plants in flower from Lord Rothschild's garden, Gunnersbury Park (gr., Mr. Reynolds), demonstrated with what unusual success this greatly admired Orchid is cultivated in that garden, although it is in the vicinity of Chiswick.

The Floral Committee had a variety of exhibits to inspect, and amongst these was an increased number of hardy flowers and of flowering shrubs. This committee recommended one First-class Certificate and eight Awards of Merit, four of which were to varieties of Tulips.

The Fruit and Vegetable Committee recommended Awards of Merit to a Cucumber and to a Turnip.

The Narcissus Committee sat, but there were comparatively few exhibits of the particular flower the Committee is interested in, and no awards were made to novelties.

In the afternoon an interesting lecture was delivered by Mr. W. BATESON, M.A., F.R.S., of which a summary is given below.

Floral Committee.

Present: W. Marshall, Esq., Chairman; and Messrs. H. B. May, R. Dan, G. Reuthe, W. Howe, Jas. Hudson, John Jennings, J. F. McLeod, R. B. Lowe, Robt. Fife, Chas. Jeffries, H. J. Jones, Chas. E. Pearson, H. J. Cutbush, Chas. E. Shea, E. H. Jenkins, W. J. James, J. W. Barr, Geo. Paul, E. T. Cook, Chas. T. Drury, J. Fraser, Ed. Mawley, and J. D. Pawle.

Diphne Cneorum was very finely shown by Mr. KNOWLES, Woking, who has uncommon success in the cultivation of this sweet little plant.

Polyanthus Primroses (Munstead strain) from Miss JEVILL, V.M.H., Munstead Wood, Godalming (gr., Mr. A. Zumbod). There were two large baskets of plants of very great strength, and most profusely bloomed. From white to deep orange there were every possible shade of yellow, and the exhibit was greatly admired by lovers of hardy plants (Bronze Banksian Medal).

Messrs. R. WALLACE & SONS, Kilsfield Nurseries, Colchester, showed blooms of a white striped variety of *Anemone fulgens*, named *A. f. annulata striata*. Blooms of *Camassia Leichtlini* were shown, with white or pale lemon coloured flowers.

Messrs. R. VEITCH & SON, Exeter, showed blooms of some

choice varieties of Rhododendron. The Himalayan hybrid Kewense was shown, and Mrs. Butler, light purple; Luscombe, rose colour; and Coombe Royal, white, with spotted upper petal, are also pretty hybrids of the same class. R. nilagiricum is a variety of R. arboreum, and has smaller and less spreading flowers than the Himalayan type.

Messrs. CARTER & CO., 237, High Holborn, showed a large group on the floor of the hall, consisting of Cineraria cruenta varieties. Good strong plants, finely bloomed, and in sufficient variety. There were shades of purple, lilac, mauve, blue, purplish-crimson, &c. The group was edged with double-flowered Cinerarias and Maidenhair Fern.

Messrs. JOHN LAINO & SONS, Forest Hill, London, S.E., showed a group of Azalea mollis, Viburnum Opulus, Staphylea colchica, Japanese Maples, Kalmias, Rhododendrons, Lilacs, Acer Negundo foliis variegatis, and some other plants (Silver Banksian Medal).

Mr. H. J. JONES, Ryecroft Nursery, Lewisham, London, staged a very pretty display of cut flowers of Tulips, bulbous Irises, late-flowering Daffodils, and Polyanthus Narcissus. Of Tulips there were single and double varieties; one of the double ones, Murillo, rose-colour and white, was similar in appearance to a Paeony. The old double, Tournesol, was conspicuous; La Candeur, Rose Luisante, Tulipa Golden Crown, T. vitellina, pale yellow; Rose Blanche, double white, were among the best. The blooms of Spanish Iris were very bright, and included the varieties Juliet, lilac-coloured and white with yellow; Thunderbolt, purple bronze and yellow; Baron von Humboldt, blue with yellow; Alhambra, white and yellow; and Sensation, of several shades of blue and yellow.

Mr. H. J. JONES again showed a plant with one flower of the crimson Malmesbury Carnation Mrs. H. J. Jones.

Roses were shown by Messrs. F. CANT & CO., Braiswick Nursery, Colchester, who had excellent blooms of Marechal Niel, Comtesse de Nadaillac, Madame Cusin, Madame de Watteville, Mrs. R. G. S. Crawford, &c. Several pretty Polyantha varieties were shown. Perle des Rouges is a new one, having large, deep crimson flowers; and Thalia, a new one, having white flowers. They and others, all of them free-flowering, were very charming.

Carnations with names exceedingly suggestive of militarism were shown by Messrs. H. & J. ELLIOTT, Courtbushes Nursery, Hursley, Hants. Of these were "Soldier of the Queen," a carnation seedling from Miss Jolliffe and Uriah Pike, Khaki, a yellowish-buff flower of rather neat form; and Lord Roberts, a large but rather loose flower of pretty colour from the same cross as a "Soldier of the Queen."

Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley, made an interesting exhibit of sprays cut from the more showy flowering Crabs, and sprays of other beautiful flowering shrubs, which we may refer to in our next issue (Silver Flora Medal).

Mr. AMOS PERRY, Hardy Plant Farm, Winchmore Hill, London, N., showed a collection of hardy plants in flower, which included the new double form of Arabis alpina, several varieties of Geum montanum, Alyssum saxatile fol. var., Phlox amona, P. setacea, and others, and many additional and dissimilar plants of the herbaceous and alpine garden (Silver-gilt Flora Medal).

Mr. M. PRITCHARD, Purewell Nurseries, Christchurch, also had a collection of choice hardy flowering plants. We noticed Scilla nutans violacea, a variety with much deeper coloured flowers than the type, many pretty varieties of the dwarf Phloxes, Geums, Trollius, and other species (Bronze Banksian Medal).

In an exhibit from Mr. T. S. WARR, Ltd., Feltham, were some grand examples of blooms of Iris Susiana. Many hardy plants suitable for cultivation in the rock garden were included in this exhibit.

Messrs. G. JACKMAN & SON, Woking, staged one of the best exhibits of hardy flowering plants. The collection included Phloxes, Tulipa species, Trollius, Trillium grandiflorum, Cypripedium pubescens, Dodecatheon Meadia, and Daphne Cneorum major (Silver Banksian Medal).

A large exhibit of Tulips was brought from Ireland by Messrs. HOGG & ROBERTSON, 22, Mary Street, Dublin. There were staged as many as 150 varieties, including a fine lot of single flowers of large size and brilliant colour; also Tulipa species, and May-flowering or "Darwin" Tulips. These latter will be shown better at a later date (Silver-gilt Banksian Medal).

Messrs. BARR & SONS, King Street, Covent Garden, London, had a large collection of hardy flowers, including Tulips, late-flowering Narcissus, and alpine plants (Silver-gilt Banksian Medal).

Messrs. W. CUTBUSH & SON, Highgate Nurseries, London, showed a group of miscellaneous plants, in which were Azaleas, Ericas, Epiphyllums, Boronia elatior, Lilacs, &c. (Silver-gilt Banksian Medal).

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, contributed a group of hardy Azaleas in profuse bloom.

New varieties of Narcissus were shown by the Rev. G. ENGLEHEART, Miss WILLMOT, and Mrs. KATHERINE SPURRIER, Bessingham.

Awards.

Asparagus Sprengeri variegata.—We remember to have seen at the Ghent show two years ago a variety of this useful and attractive species, that had foliage variegated with white, but not nearly to the extent noticed in a large and magnificent specimen now exhibited by Messrs. F. SANDER & CO., St. Albans (First-class Certificate).

Camellia "Devonia".—A single white variety, that succeeded perfectly in the open in Devonshire. From Messrs. R. VEITCH & SON, Exeter (Award of Merit).

Geum montanum aurantiacum.—A valuable variety, with deeply orange-yellow flowers. Shown by Mr. A. PERRY, Hardy Plant Farm, Winchmore Hill, London, N. (Award of Merit).

Rhododendron (Azaleodendron), *Directeur Rodigas*.—A rose coloured variety, upper petal much spotted. From Messrs. JAS. VEITCH & SONS (Award of Merit).

Rhododendron Coombe Royal.—A Himalayan hybrid, with white or tinted flowers, and spotting on upper petal very handsome. From Messrs. R. VEITCH & SON (Award of Merit).

Tulipa Boraszewski.—A very pretty Asian Tulip, with slender stems eight inches in length. The flowers are yellow inside, but the three outer segments have much colour upon the outside. The tips recurve considerably. It was figured in the *Botanical Magazine*, t. 6635. From Miss E. WILLMOT, Warley, Essex (Award of Merit).

Tulipa Kolyokovskiana.—A fine species that grows about one foot in height, and has slender stems nine inches long. Interior of perianth bright vermilion, with yellow at base around purple blotch, stamens black. The exterior is red colour, petals recurve at tips. The colour of the species varies considerably. It was figured in *Gardeners' Chronicle*, n. s. xiii., p. 652. From Miss WILLMOT (Award of Merit).

Tulip "Hector".—A very large and fine Tulip, purple in colour, with gold edging. From Messrs. HOGG & ROBERTSON (Award of Merit).

Tulip Pink Beauty.—A bright rose-coloured variety with flowers of very good form, and possessing a broad silver-coloured feather on the exterior centre of each segment. From Messrs. HOGG & ROBERTSON, 22, Mary Street, Dublin (Award of Merit).

Orchid Committee.

Present: Norman C. Cookson, Esq., in the chair; and Messrs. H. J. Veitch, Jas. O'Brien (Hon. Sec.), De B. Crawshaw, H. Little, H. J. Chapman, W. H. Young, H. A. Tracy, H. T. Pitt, W. Potter, E. Hill, J. Jacques, T. Rochford, J. Colman, W. Cobb, J. Douglas, and G. J. Lucas.

The meeting was remarkable for the exceptionally fine display of Orchids which called forth the awards of two Gold Medals, the one going to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury Park (gr., Mr. Reynolds), for a grand group of Vanda teres, the plants in which bore upwards of 200 spikes, and which were most artistically arranged; and the other to Messrs. JAS. VEITCH & SONS, Chelsea, for one of the finest groups of the season, in which both fine varieties of imported species and rare hybrids were equally represented.

There was a fine selection of varieties of Cattleya Mendeli, Cattleya Schroderae, a fine pan of the now rare Oncidium pulchellum, Miltonia Phalaenopsis, various Odontoglossums, and other showy Orchids. Prominent among the hybrids were Lælio-Cattleya x G. S. Ball (L. cinnabarina x C. Schroderae), a fine coppery-orange flower; Epidendrum O'Brienianum superbum, with about 100 brilliant crimson flowers on a head; E. x O'Brienianum giganteum, nearly twice as large as the original; Zygo-colax x Veitchi, Chysis x Langleyensis, Epidendrum x Langleyense, and other hybrid Epidendrums, Lælio-Cattleyas, and Cypripediums.

H. T. PITT, Esq., Rossllyn, Stamford Hill (gr., Mr. Thurgood), was awarded a Silver Flora Medal for a very fine group of principally fine Odontoglossums. Very remarkable were some richly blotched O. crispum, O. x Wilkeanum Pittii, one of the finest of its class; good Miltonia Roessli, Odontoglossum x Andersonianum, and other hybrids.

Messrs. LINDEN, l'Horticoles Coloniale, Brussels, secured a Silver Flora Medal for an excellent group of remarkable forms of spotted Odontoglossum crispum, O. Pescatorei, and hybrids. Very remarkable were O. x zebrinum, a fine flower, the greater part of whose surface was heavily blotched with claret-red; O. crispum Magister with large showy blotching and rose tint; O. c. Rodigasianum, similar in character; a grand, large, white O. crispum; O. Pescatorei grande, Miltonia vexillaria Memoria Lindeni, a noble flower of a bright crimson-rose colour; a fine O. triumphans, two superbly spotted O. x Adriana, &c.

Sir F. WIGAN, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young), showed a small group, in which the fine varieties of Cattleya Mossii were well represented; also Lælia Boothiana, and the beautiful L. purpurata "Ethel Grey."

JEREMIAH COLMAN, Esq., Gatton Park (gr., Mr. W. P. Bound), showed an excellently set-up stand of fine Odontoglossum and Cymbidium Lowianum, spikes arranged in a wicker stand, over which Asparagus plumosus was trained; also a smaller device, in which were Vanda suavis, Sophronitis grandiflora, Masdevallia Veitchiana, Lælio-Cattleya x Schilleriana, &c.

R. BROOMAN-WHITE, Esq., Arddarroch, Garelochhead (gr., Mr. Cole), sent fine cut examples of Cattleya Schroderae and Odontoglossum Ruckerianum.

FRED HARDY, Esq., Tyntesfield, Ashton-on-Mersey (gr., Mr. T. Stafford), sent Dendrobium x (nobile x Farmeri), in which the evidence of D. Farmeri did not distinctly appear, though the one-flowered inflorescence displayed a tendency to form a raceme, and the more shell-like lip had some indication of D. Farmeri. The flower nearly resembled D. nobile in size and colour. Mr. HARDY also sent flowers of good Cattleya Schroderae.

G. F. MOORE, Esq., Chardwar, Bourton-on-the-Water (gr., Mr. Morris), sent two noble spikes of Cattleya Lawrenceana.

JEREMIAH COLMAN, Esq., Gatton Park, sent the fine Odontoglossum x Ruckerianum Gatton Park variety.

Lt.-Col. SHIPWAY, Grove House, Chiswick (gr., Mr. Walters),

showed a neat group of Cattleya Mendeli, &c., for which a Silver Banksian Medal was awarded.

Messrs. F. SANDER & CO., St. Albans, showed Lælio-Cattleya x Harold Morris (C. Regnellii x L.-C. x Schilleriana), a pretty flower with rich crimson labellum.

Awards.

FIRST-CLASS CERTIFICATE.

Odontoglossum crispum anticum Roscheldense, from DE B. CRAWSHAW, Esq., Rosefield, Sevenoaks (gr., Mr. S. Cook). This may best be described as an O. crispum of the best broad-petalled type, but of an uniformly bright canary-yellow colour.

Odontoglossum crispum Pittii, from H. T. PITT, Esq., Rossllyn, Stamford Hill (gr., Mr. Thurgood).—A grand flower of the O. c. apiatum class, richly blotched with rose-purple, and tinged at the back with rose colour.

AWARD OF MERIT.

Lælio-Cattleya x Hycana (L. purpurata x C. Lawrenceana), from Messrs. JAS. VEITCH & SONS.—A fine flower with rosy-lilac sepals and petals, and intense purplish-crimson front to the lip.

Odontoglossum crispum tessellatum, from Messrs. LINDEN, l'Horticoles Coloniale, Brussels.—Flower of good form, white, tinged with purple on the reverse side, and blotched and marbled with reddish-purple.

Lælia purpurata "Ethel Grey", from Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young).—A large and beautiful form with white sepals and petals, and rich reddish-rose front to the lip.

Cypripedium x Phoebe (phillippinense x bellatulum), from W. M. APPLETON, Esq., Tyn-y-Coed, Weston-super-Mare.—A very distinct hybrid with broad deflexed petals. Flower ivory-white, slightly tinged green, the dorsal sepal and petals prettily striped with purple.

BOTANICAL CERTIFICATE.

Masdevallia O'Brieniana, from R. I. MEASURES, Esq., Camberwell (gr., Mr. H. J. Chapman).—A charming little-tufted species with yellow flowers barred with purple, and borne in profusion from the base of the leaves.

Epidendrum vesicatum, Lind., from A. H. SMEE, Esq., Hackbridge (gr., Mr. Humphreys). A singular species, with compressed growth, the angular leaves being glaucous, and bearing a terminal head of small whitish flowers.

Fruit and Vegetable Committee.

Present: Philip Crowley, Esq. (Chairman); and Messrs W. Wilks, H. Essling, Jos. Cheal, P. C. M. Veitch, A. H. Pearson, Geo. Kelf, Alex. Dean, S. Mortimer, H. Markham, Jas. H. Veitch, Ed. Beckett, James Smith, F. Q. Lane, G. Norman, J. Willard, Geo. Bunyard, H. Balderson, Geo. Wythes, H. Somers Rivers, and G. Reynolds.

The Earl of CAMPERDOWN, Winton House, Shilton-on-Stour (gr., Mr. M. Masterman), showed a few dishes of Pears and Apples, including Uvedale's St. Germain Pear, Blenheim Orange Pippin, Hanwell Souring, Northern Greening Apples, and a fine dish of Royal Sovereign Strawberry (Silver Knightian Medal).

Mr. T. CUCKNEY, gr. at Cobham Hall, Gravesend, also showed a very fine dish of Royal Sovereign Strawberry.

From the Marquis of SALISBURY's garden at Hatfield House Hatfield (gr., Mr. Geo. Norman), came nearly one hundred mammoth fruits of Royal Sovereign Strawberry, perfect in colour also. Mr. Norman has proved for several seasons how very successful he is in the cultivation of this exceedingly popular Strawberry (Silver Knightian Medal).

Messrs. LAXTON, Bros., Bedford, showed plants in fruit of a new perpetual fruiting Strawberry, named St. Antony of Padua, and obtained from a cross between St. Joseph and Royal Sovereign. The plants were stated to be from open ground runners potted up in November. The fruits were much larger than those of St. Joseph, and the variety should be valuable. But no award was made to it on this occasion.

The Duke of NORTHUMBERLAND, Syon House, Brentford (gr., Mr. G. Wythes), exhibited an exceedingly well-grown collection of vegetables now in season, receiving an award of a Silver-gilt Knightian Medal. Most noteworthy were Market Favourite Cucumber, Cauliflower Sutton's White, Cabbage Veitch's Main Crop, Spinach Victoria Improved Round, Lettuce All-the-Year-Round, Kale Read's Improved Hearting, Cos Lettuce Sutton's New Early Cos, Cabbage Lettuce Golden Queen, Pea Carter's Daisy, Cauliflower Model, Cucumber Veitch's Perfection, Broccoli Purple Sprouting, Cabbage Sutton's Early April (apparently a very early hearting one), and Musselburgh Leek. French Beans were well shown in several varieties. The conditions at Syon do not surpass those of Chiswick.

Awards.

Cucumber "Ideal".—From a cross between Lockie's Perfection and Victory. It is said to be very prolific and good at all seasons. Mr. E. Beckett, gr. to Lord ALDENHAM, Elstree, exhibited fine fruits, but we failed to discover in those shown any exceptional quality (Award of Merit).

Turnip Carter's Early Forcing.—This is an excellent Turnip, resembling the Felton in shape. The roots shown had been grown in a cold-frame by Mr. E. BECKETT, Aldenham House Gardens, and the useable portion of each was about 6 inches long (Award of Merit).

Lecture.

Mr. W. Bateson gave a lecture on "Problems of Heredity as a Subject of Horticultural Investigation." He said that while no one doubted the great importance of precise knowledge of the facts and laws of heredity, this region of physiology was one in which little progress is being made. Horticulturists have the best possible opportunities for making the necessary observations. The chief reason why so little is done is perhaps ignorance of the way in which the problems are to be attacked. Formerly such work consisted chiefly in sporadic observation of striking or peculiar cases of hereditary transmission, examples of extreme prepotency, inheritance in special cases of hybridisation, and so forth. Without doubting the high value of such observations, it seemed to the lecturer that we are reaching a further stage in the investigation in which the laws of heredity, in its normal course, are of more immediate importance. That a beginning has been made in determining the normal "Law of Heredity" was almost wholly due to the work of Francis Galton. As in all cases where the factors are so complex as to be quite beyond our appreciation, statistical treatment is the only way of arriving at law; and by application of statistical methods in heredity, a new start had been made. As Galton uses the term, the law of heredity is a statement of the probability that a given transmissible character of the parent will be possessed by the offspring. From several cases investigated by him, notably the transmission of colours in Basset hounds, Galton has been led to enunciate his now well-known law, which is that of the total heritage of the individual, the two parents will probably contribute half, the four grandparents one-quarter, the eight great-grandparents one-eighth, and so on. This law, which is undoubtedly an approximation to truth in certain cases, was an illustration of the class of result which may be hoped for from a statistical study of heredity on a large scale. That the same law was true of all cases could certainly not be affirmed, and it is urgently needed that experiments should be made to ascertain in what groups of cases this law holds good, and how it must be modified in order to fit other cases. There were, for instance, the numerous classes of crosses in which the character of one parent wholly predominates the first generation of crossing. To these the simple law could not be applied as originally stated. The recent work of Professor de Vries (*Comptes Rendus*, March, 1900), however, shows that in certain such cases subsequent breeding from the cross-bred plants leads to the reproduction of the parent species in such proportions that the facts can be expressed by a modification of Galton's law.

Apart from the scientific aspect of these investigations, it was possible that results of some practical consequence might be obtained from the study of inheritance. Already, indeed, in any given case in which Galton's law applies, we should be able to predict with some certainty the number of generations of self-fertilisation and selection that are necessary in order that a new variety may come true from seed, and the rate at which it will progress towards purity in each generation. Mr. Bateson appealed to horticulturists who had the necessary leisure to aid in such investigations by preserving statistical records of their work.

LINNEAN.

APRIL 19.—Dr. A. Günther, F.R.S., President, in the Chair. On behalf of the Hon. Charles Ellis, F.L.S., the President exhibited photographs of a large tree—*Taxodium distichum*—growing in Oaxaca in Mexico; and of another gigantic tree, a native of Cambodia. The circumference of the former, at a height of 3 feet from the ground, was stated to be 143 feet, while the height was estimated to be not more than 100 feet. The native name for this tree is *Sabino*. Mr. Daydon Jackson read an account of it, quoting from London's *Mag. Nat. Hist.*, vol. iv. (1831), p. 30, and Humboldt's *Views of Nature*, p. 274 (see *Gard. Chron.*, Nov. 26, 1892, p. 100). The second gigantic tree, which could not be satisfactorily determined by the photograph, has been observed growing on the Makong River, near the celebrated ruins of the great city of Angkorwat in Cambodia.

Messrs. W. B. Hemsley and H. H. W. Pearson, read a paper on some collections of High-level Plants from Tibet and the Andes.

Mr. Hemsley first gave a brief history of the botanical exploration of Tibet, followed by an account of the unpublished collections presented to Kew by Captain Welby and Lieutenant Malcolm, by Captain Deasy and Mr. Arnold Pike, and by Dr. Sven Hedin. These collections were all made at great altitudes in Central and Northern Tibet; few of them below 15,000 feet, and some of them at 19,000 feet and upwards. The highest point at which flowering plants had been found was 19,300 feet above the level of the sea. The plants recorded by Deasy and Pike at altitudes of 19,000 feet and upwards are—*Corydalis Hendersoni*, *Arenaria Stracheyi*, *Saxifraga parva*, *Sedum Stracheyi*, *Saussurea bracteata*, *Gentiana tenella*, *G. aquaticae*, an unnamed species of *Astragalus*, and an unnamed species of *Oxytropis*. These are the greatest altitudes on record for flowering plants. Deep-rooting perennial herbs having a rosette of leaves close to the ground, with the flowers closely nestled in the centre, are characteristic of these altitudes. The predominating natural orders are:—Compositae, Leguminosae, Cruciferae, Ranunculaceae, and Gramineae. The Compositae largely predominate, and the genus *Saussurea* is represented by numerous species. Specimens of about a dozen species were shown to illustrate the great diversity exhibited by this genus in foliage and inflorescence.

Liliaceae and the allied orders were very sparingly represented. Two or three species of *Onion* occur; one of them, *Allium Samenovi*, in great abundance up to 17,000 feet. None of the collections contained any species of *Orchid*.

Mr. H. H. W. Pearson followed on the Andine Flora, with special reference to Sir Martin Conway's small collection of plants brought from Illimani in the Bolivian Andes in 1898. In consequence of the labours of Dr. Orbiguy, Pentland, Meyen, Weddell, Mandon, and other botanists, the high-level flora of the mountains of Bolivia is better known than that of any other equally elevated region of the Andes. Weddell's collections form the nucleus of the materials from which the *Chloris Andina*—the classic work on the flora of the High Andes—was prepared.

Many collectors have obtained plants in various parts of the Andes at elevations stated to be greater than 17,000 feet. Colonel Hall states that he saw four plants on Chimborazo in 1831 at "nearly 18,000 ft." These were two species of *Draba*, one of which was *D. aretioides*, H. B. K., and two Compositae, one being a *Culcitium*. Mr. Whympere and others have thrown some doubt upon the determination of this elevation, and it is probable that it was over-estimated. Out of 46 species of flowering-plants obtained by Sir Martin Conway, 7 are from 18,000 feet or above it, 2 being as high as 18,700 feet. These, the highest Andine plants on record, are *Malvastrum flabellatum*, Wedd., and *Deyeuxia glacialis*, Wedd. Thirty-nine species in this collection were found above 14,000 feet; these belong to thirty-four genera and twenty-one natural orders; fifteen (i.e., about three-eighths of the collection) are Composite. Of the thirty-four genera, one only—*Blumenbachia*—is endemic to S. America. The species, with one exception, are confined to the Andes, eight or nine of them not being found outside Bolivia.

In the collection made by Mr. Fitzgerald's expedition in the Aconcagua valleys between 8,000 and 14,000 feet, ten genera (i.e., one quarter of the whole) are endemic in South America. The contrast between this and the small endemic element in the Conway collection from above 14,000 feet, gives additional support to the generalisation that the flora of high levels is more cosmopolitan than that of low levels.

ROYAL GARDENERS' ORPHAN FUND.

ANNUAL DINNER.

MAY 8.—The annual dinner of the supporters of this excellent Institution took place at The Monaco on the above date, and it gives us great pleasure to describe the event as a very successful one.

The Chair was taken by Lord Battersea, and he was supported by many prominent horticulturists and a good attendance. There were six toasts, and an enjoyable musical entertainment; but the programme was finished shortly before eleven o'clock. Amongst those present were noticed N. N. Sherwood, Esq. (Treasurer), and Messrs. W. Marshall, Leonard Sutton, M. Hubert Poquet Sutton, W. A. Blaney, Arnold Moss, H. Balderson, D. Pell-Smith, J. H. Veitch, J. Gould Veitch, Walter Cobb, Geo. Monro, W. Roupeil, F. Q. Lane, Geo. Gordon, J. F. McLeod, H. B. May (Chairman of Committee), Jas. O'Brien, G. H. Richards, P. O. M. Veitch, H. J. Cutbush, J. W. Moorman, S. T. Wright, H. J. Jones, &c.

Lord Battersea, in proposing the toast of the evening, made a stirring appeal on behalf of the Fund, emphasising the well known advantages such a charity confers upon orphans whose helplessness should particularly appeal to those able to afford help. Incidentally the Chairman remarked that he had retired from the turmoil of politics, and that he had found in his garden and by the side of his gardener, simpler pleasures, and such as lead to less dispute. His speech disclosed a high appreciation of gardeners, and of horticulture. In responding to this toast, Mr. N. N. Sherwood as treasurer, said that since 1887, when the Fund was founded, there had been expended £10,000. The Fund now possesses £10,000, and the Committee hoped soon to complete another similar sum. But Mr. Sherwood very properly thinks that greater support ought to be given to the Fund by gardeners themselves. There is an expenditure per year of £1,000, yet by annual subscriptions an amount less than £400 is raised each year. All the rest that is needed has to be raised by means that extraordinary circumstances arising in any particular year might render ineffective. Mr. Sherwood referred feelingly to the retirement of Mr. Marshall from his position as Chairman of the Committee, to the retirement also of Mr. Herbat, and to the regretted death of Mr. T. B. Haywood, who was the first Treasurer to the Fund.

Mr. Jas. H. Veitch proposed "Gardeners and Gardening," and respecting gardeners said that the rank-and-file were badly paid. Gardening, however, was spoken of in a much brighter vein. The increased interest shown in gardening, said Mr. Veitch, was very remarkable.

Mr. R. Dean, in responding, spoke at some length upon the human interest now taken in gardening.

Other toasts were "The Chairman" and "The Press." Mr. Gordon replying for the latter.

The Chairman took the opportunity to propose the toast of "The Secretary" (Mr. B. Wynne), and the guests heartily joined in the Chairman's appreciative words respecting Mr. Wynne's work on behalf of the Fund.

AMOUNT OF HELP REALISED.

The total amount included in the Chairman's list was £595, which this year is regarded as extremely satisfactory. Some of the principal donations were—The Chairman, £25; Messrs. Rothschild, 50 guineas; Mr. N. N. Sherwood, £50; Mr. Asbee's table, £77 15s.; Mr. Poupart's table, £37 6s.; Thos. Walters, £39 3s. 6d.; Baron Schroder, 10 guineas; Sir

Trevor Lawrence, 10 guineas; Messrs. Barr & Sons, £28 16s. 6d.; Martin H. Sutton, £25; Mr. Leonard Sutton, £25; Mr. G. H. Richards, 10 guineas; Mr. Geo. Reynolds, 7 guineas; Mr. H. B. May, 5 guineas, &c.

BUCHAN FIELD CLUB.

APRIL 27.—A meeting of the Buchan Field Club was held in the Music Hall, Peterhead, Aberdeenshire, on the above date, when a valuable and instructive contribution to the "Transactions" of the Club was made by Dr. James W. H. Trail, Professor of Botany in Aberdeen University, on the "Flowering Plants and Ferns of Buchan."

Dr. Trail at the outset dealt with the topographical features of Buchan, mentioning that though woods are few, there are enough to add to the beauty of the district and to enrich its flora. The coast showed more diversity than the interior. The canal at St. Fergus and the shallow loch of Strathbeg gave interesting plants; while northwards, near Pennan, Troup, and Gamrie, there were many picturesque scenes and sheltered retreats favourable to plants. From this latter coast ravines extended inland, and well repaid search. The dens of Auchmedden had been noted since early in the century, though scarcely warranting the enthusiastic statement of a partial writer that they "are perhaps the richest field for botany in the United Kingdom." Geologically, Buchan showed traces of secondary strata, not usually found in northern Scotland, in the flints and green-sand fossils scattered on and beneath the surface in the parish of Cruden; but they were mere traces, and did not produce any effect on the flora as far as one could detect. The streams of Buchan, though numerous, were small, and none except the Deveron rose among high hills, and bore a few sub-alpine or Highland plants. The most interesting loch botanically was the loch of Strathbeg. The uniformity of conditions rendered the flora of Buchan comparatively poor, and restricted several of the more interesting plants to a few localities. Among the richest habitats were the banks of the Ythan, near the mouth, near Ellon, and at Gight, the rocky coast of Slains, the neighbourhood of Inverurie, the fishing villages, the coast near Pennan and Gamrie, the dens of Auchmedden, the bank of the Deveron in King Edward and at Lathiers, and scattered places in the interior. A few plants that were strictly alpine grew on the coast rocks, and one pretty little plant, *Scilla verna*, that was very distinctive of the flora of the north-east coast of Scotland, reached its south-eastern limit at Fraserburgh.

Dr. Trail then proceeded to speak on the local writings on the subject, and said he had brought together all previous records, added to them his personal observations, weighed the evidence in doubtful cases, and secured the materials for a trustworthy history of the vascular plants of Buchan. A number of the Buchan records had to be considered in the light of new investigations to bring them into accord with the flora of other regions. A comparison of the recorded flora with those of neighbouring districts suggested that various plants, not yet known to occur in the districts, would reward the search for them in suitable localities. Over 400 vascular plants had been enumerated, but he found that nearly 550 species might be admitted on possibly trustworthy evidence, though several required investigation. Of these about 9 per cent. were almost confined to the coast. Analysing the list into the types distinguished in the British flora, they found that the percentage on the local flora was nearly as follows:—British 85, English 3½, Scottish 8, Highland 2, Germanic and Atlantic 2. The most marked character of the Buchan flora was the predominance of the British type and the small number of Highland plants. The few plants of the Germanic and Atlantic types were all limited to the coast. The Highland plants, though relatively few, appeared to form a large share of the flora than they actually did, as several were casuals along the Deveron. Of the 350, 48 were evident introductions, or of merely casual occurrence, and 29 were weeds confined to cultivated fields, and would probably become extinct but for cultivation. Dr. Trail concluded his most instructive paper by giving some general hints to his hearers as to the collection of specimens—advice that was evidently greatly appreciated. On the motion of Dr. Sinclair a hearty and well-merited vote of thanks was unanimously accorded Professor Trail for his admirable lecture.

ROYAL CALEDONIAN HORTICULTURAL.

MAY 2, 1900.—One of the lesser shows arranged for this season by the Royal Caledonian Horticultural Society was held in Dowells Rooms, George Street, Edinburgh, on the above date, and was very successful.

Mr. Lindsay's lecture upon Primroses lasted for about an hour, and was packed full of historical, cultural, and botanical information. Mr. Lindsay exhibited more than forty species of Primroses, and the collection attracted much interest. Of other exhibits the principal were Primroses, Auriculas, Daffodils, and Rhododendrons. Also some fine foliage and decorative plants, &c.

Hardly less interesting than Mr. Lindsay's collection, were the Primroses and Auriculas, some thirty-five species, staged by Messrs. Gordon & Sons, of Cottbridge Nurseries. This exhibit included a beautifully variegated-leaved Auricula, and many choice species.

Mr. Reid, gardener at Ashiestiel, Galashiels, sent a fine collection of *Polyanthus* and Primroses, including twelve double varieties.

G. W. COWAN, Esq., Valleyfield, had a superb collection of Narcissus, which quite filled a square table, lightly garnished with Fern fronds.

Mr. GLASS, nurseryman, Newington, Edinburgh, put up some hundred varieties of Narcissus with foliage, in elegant cases, at the end of the room (without water). These made a fine display, and there were some notable flowers among them.

There was a fine collection of greenhouse Rhododendrons shown by Mr. ALEX. McMILLAN, of Trinity College, Edinburgh, who has made a specialty of these plants for many years.

Messrs. THOM. MATHVEN & SONS, showed some fine early flowering hardy Rhododendrons from the open air. The more notable being the yellow *R. caucasicum*, Jacksoni, and *Empress Eugénie*.

Messrs. LAIRD & SONS had a rich collection of Caladiums, choice Pelargoniums, Bamboos, &c.

Mr. JOHN DOWNIE's exhibit was specially rich in Ericas, choice Ferns, and other decorative plants. Two of the more rare exhibits at the show were the double flowering *Arabis alpina* and the blue-flowered *Tropaeolum azureum*, which, unfortunately, is hardly a hardy plant.

A fine lot of James' Keeping Onions were exhibited, sound as a bell on May 2. It was said they were sown under glass in January, 1899, planted out in the beginning of April, lifted early in September, and stored in October.

Mr. Brotherton, gr. to the Earl of HADDINGTON, Tynninghame, Prestonkirk, set up a splendid collection of some forty dishes of Apples, mostly without speck or flaw. The following were the most notable in this choice selection:—Paradise Pippin or Lady's Finger, Cox's Orange Pippin, Deux Ans, Ribston Pippin, Hoary Morning, Beauty of Kent, Blenheim Pippin, Leather-out Russet, Striped Beaufin, Alfriston, Wellington, &c. There were also several sizes of Northern Greening shown, one of the finest Apples for baking and stewing at this late season. This is also supposed by some, though on less reliable authority than could be wished, to be the Apple John of Shakespeare.

Mr. BROOK, nurseryman, Dundee, showed a basket of White Kale or Borecole, under the name of Inevitable Albino. It is the whitest that has yet been seen, and excited much interest at the show, as well as at the meeting of the Scottish Horticultural Association on May 1.

The next show, to be held in July, will be chiefly of Roses and Strawberries; and the lecture will be on Roses. It is hoped that these little events between the great spring and autumn fruit shows will increase the popularity and usefulness of the Royal Caledonian Horticultural Society, as well as bring plants, fruits, and flowers, more closely into touch with the lives of all its members and friends.

MISCELLANEOUS SOCIETIES.

Reading and District Gardeners'.—The last fortnightly meeting of the winter and spring session was held recently in the Club Room, Old Abbey Restaurant, Reading. The subject, "Spring Bedding," was introduced by Mr. J. B. Stevenson, head gardener to the Corporation, Bournemouth. Spring-bedding is an important feature in the management of the Municipal Gardens at Bournemouth. The lecturer said that the present is the best time to consider "Spring Bedding," for it is now one could see mistakes that had been made in the planting of unsuitable varieties, and in the matter of combining colours. He then went on to enumerate the various varieties of flowering plants and bulbs which he found by experience to succeed well in the south, and to describe the culture of each. Then followed interesting remarks respecting the importance of the proper blending of colours. A discussion followed in which Messrs. Stanton, T. Bowie (who received a hearty welcome from the members on his return to the neighbourhood, he having come to take charge of Mr. A. C. Harnsworth's gardens at Calcot Park), Townsend, Alexander, Burditt, and Wilson. Messrs. Sutton & Sons exhibited a beautiful collection of Narcissus-blooms, and Mr. Stanton some splendid examples of Commodore Nutt Lettuce.

Ile of Wight.—The monthly meeting of the Isle of Wight Horticultural Improvement Association was held at Sandown on Saturday last, Dr. J. Groves, B.A., J.P., in the chair. Mr. COX ORCHARD, F.R.H.S., of Bemburgh, read a thoroughly practical, interesting, profitable, and suggestive paper on "Flowering and Ornamental Foliage Creepers for the embellishment of House and Garden," which evoked an instructive discussion. Mr. J. H. PEARSON, of Los Altos, Sandown, staged a group of plants consisting of Palms, Ferns, Crotons, Dracaenas, Coleuses, *Isolepis gracilis*, *Schizanthus retusus*, &c., which were very effectively arranged; and also a fine dish of Royal Sovereign Strawberry, for which exhibits he received the Association's Certificate. The election of several new members brought a very successful meeting to a close.

Chesterfield Chrysanthemum.—The spring show was held in the grounds of Tupton Grove, the residence of the President, R. F. MILLS, Esq., on April 25, and there was a good attendance of the general public, in addition to members of the Society. Pretty groups were arranged round the sides of the tent, and a very imposing display was thus made. Mrs. Sheenall, of Gluman Gate, Chesterfield, presented a large collection of Daffodils, to be sold for the benefit of the Gardeners' Orphan Fund. Tupton Grove is very pleasantly situated about 2½ miles from the town with the crooked spire. The principal feature of the garden at this time of the year is the rockery; and the fine display of Narcissus, of which about 100 varieties are grown in quantity. There was a first rate display of plants in flower in the houses. Visitors were permitted to roam where they chose. The gardener, Mr. Bloxham, grows well whatever he undertakes. The aims of the Gardeners' Orphan Fund were forcibly explained by W. Jacques, Esq., during the afternoon to a good company. W. P.

PLANT PORTRAITS.

A HYBRID *HEMANTHUS*, *König Albert*.—According to the *Garten Flora*, in which it is figured and described, this hybrid, raised by Mr. J. Nicolai, in Coeswig, belongs to the largest and strongest of the genus, the flower-stalk being more than 3 feet high. The waved foliage is very luxuriant and not unornamental. The flower-stalk is furnished with purple-brown stripes; the flower-spikes rosy-cinnabar red; and the colour of the anthers yellow. A fine decoration plant.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—We are informed that in connection with the annual dinner to be held on Friday next, May 18, the Baron SCHRÖDER and N. N. SHERWOOD, Esq., have each contributed a sum of £50 in aid of the Fund.

PUBLICATIONS RECEIVED.—*Bulletin of the Botanical Department, Jamaica.* Edited by William Fawcett (New Series, vol. vi.). Gives a satisfactory account of the work (chiefly with economic plants) carried on in the various districts.—*Annual Report of the Secretary for Agriculture, Nova Scotia*, for the year 1899. This includes a Review of Agricultural Work in Nova Scotia in 1899, by the Secretary, Mr. B. W. Chipman; the Annual Report of the Provincial Farm by Mr. F. L. Fuller, and the Annual Report of the Nova Scotia School of Horticulture, by Prof. Sears, as well as an Abstract of Reports of Agricultural Societies in the different Counties.—*The Agricultural Gazette of New South Wales*, March, includes papers on the Systematic Position of the Locust-fungus imported from the Cape, by D. McAlpine; Barley-growing, by C. Redwood; Useful Australian Plants, No. 59, *Aristida Behriana* (with plate), J. H. Maiden, Cultivation of Potato Crops; Macaroni Wheats, by Geo. Valder, &c.—*Nekans' Monthly*, April. This has an article and coloured plate of *Trillium cernuum*, the "American Herb, Paris," and notes on Wild Flowers and Nature, General Gardening, New and Rare Plants, and so on. From the U. S. Department of Agriculture, Division of Agrozoology (Grass and Forage Plant Investigations), Bulletin No. 21. *Studies on American Grasses*.—*The North American Species of Chactochloa*. By F. Lamson (Scribner and Elmer, D. Merrill).—*Twenty-eighth Annual Report of the Board of Park Commissioners of San Francisco* for the year ending June 30, 1899. "Golden Gate Park is conceded by experts to be one of the leading parks of the world." The Report before us is illustrated with tinted photographs, and these assist the letterpress in enabling readers to realise the vast progress made in turning a tract once barren sandy waste into such a luxuriant and enjoyable recreation ground.

ANSWERS TO CORRESPONDENTS.

CATERPILLARS ON PLUMS, APRICOTS, CHERRIES, &c.: J. S. W. Your package, unfortunately, got crushed during transit, but the remains show that the caterpillar is that of a species of Tortrix moth. Many of the caterpillars are apparently full fed, and you will find them turning to a chrysalis within the tubes of rolled leaves which they have made. Your only course now is to hand-pick the rolled-up leaves with the contained chrysalis or caterpillar. In winter unroll the trees, give them a dressing of lime-wash, and apply a dressing of paraffin to the walls behind the trees. If caterpillars occur again in spring, apply a dressing of Paris Green at the rate of 1 oz. to 20 gallons of water. R. N.

CUCUMBER LEAVES SPOTTED: P. F. A. This is caused by a leaf-spotting fungus. Ventilate as much as possible, and every two weeks spray with Bordeaux Mixture, taking care to wet both surfaces of the leaf. The method for making the Bordeaux Mixture was given in this column on May 20, 1899. For Cucumbers, use 3 lb. copper sulphate, and 3 lb. quicklime to each 50 gallons of water. If this strength spots the foliage, use more water at the next spraying. The finer the spray applied the better.

FLY: F. L. S. The Narcissus-fly, *Merodon Narcissi*.

GRAPES: Grower. The berries appear to have been affected by red-spider, or some mite. The berries are shanking.

IRENE CUTTINGS: W. A. J. Can it be that sufficient heat was not afforded? They do not appear to have callused.

NAME OF FRUIT: R. B., Bristol. The Apple is Horned Pearmain, and is rightly described as a useful long-keeping variety.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—J. O. M. *Brassia verrucosa*.—W. A. F. *Trachelospermum jasminoides*.—Tudor. *Dendrobium nobile*, of the rather small-flowered, brightly-coloured type;

Dendrobium Pierardi, *Coclogyne flaccida*, *Oncidium Cebolleta*—the yellow. Why not number the specimens?—J. T., Dartford. 1, *Lycaea cruenta*; 2, *Cattleya Mossii*, very good; 3, *Odontoglossum triumphans*; 4, *Odontoglossum maculatum*; 5 and 6, good varieties of *Odontoglossum Pescatorei*.—M. J., Bonchurch. *Akebia quinata*.—A. E. *Laelia purpurata*, pale form. A. U. S. 1, *Akebia quinata*; 2, *Fritillaria meleagroides*; 3, *Linaria cymbalaria*.—C. D. *Amelanchier vulgaris*.—D. G. Seeds of the Loquat, *Eriobotrya japonica*.—Reader. 1, *Acer polymorphum atropurpureum*; 2, *Weigela hortensis variegata*; 3, *Forsythia suspensa*; 4, common Thyme; 5, Marjoram; 6, not recognised; the numbers were very indistinct, and the specimens without flowers, which renders it difficult to determine accurately.—H. M. *Centaurea gymnocarpa*.—E. J. T., Beckingham. The leaf is of *Pellionia pulchra*, the other *Elmagnus argentea*.—H. F. *Cytisus* (*Genista*) *hispanica*.—J. M. The double *Petunia* is a good one, but not superior to many others in cultivation. S. W. 1, *Abies grandis*; 2, *Abies Pinsapo*; 3, *Abies*, perhaps *Nordmanniana*; 4, *Thuja gigantea*; 5, *Juniperus* sp.—S. R. *Fedia olitoria* (Lamb's Lettuce), much used as a salad in France.

NARCISSUS: F. L. S. One of the innumerable forms of *Tazetta*.

NARCISSUS BULBS: R. W. We never saw bulbs in worse state. There is evidence of the Narcissus-fly, and of fungus in abundance. They shall be examined, and reported on later on.

NECTARINE WOOD DYING: Wilson. It is caused by a fungus, probably that of *Monilia fructigera*. The specimens are still under observation, and if more definite information is obtained, we will give it you in a subsequent issue.

NYMPHÆA-BLOOMS TO KEEP OPEN BY NIGHT: W. C. At p. 303 of our issue for March 9, 1895, we gave an account of a method by which the blooms of *Nymphæas* could be employed at night in decorative devices, adopted by the Brothers Harter, at Speyer. It consists of a minute spray-apparatus, by means of which a few tiny drops of water are carried to the bottom of the very spongy part of the bloom, bringing the movements of the protoplasm to a standstill. This is the only known method by which the blooms can be prevented from closing at eventide. It is not necessary to remove the blooms from the plants.

ROSE BLOOM: Harris, Swansea. The malformation is not uncommon.

SHAMROCK: H. L. T. For an account of the Shamrock, see our issue for March 24 last, p. 192.

STRAWBERRY, ROYAL SOVEREIGN: A. Bateman, Blixworth Hall Gardens, Northampton. This variety has ousted every other from many forcing houses, especially in the London district. The fruits you send are very fine.

SULPHIDE OF POTASSIUM: A. R. B. The mixture, ½ oz. to 1 gallon of water, may be applied with a spray-squeeze or a fine rose-syringe. One application in three weeks will suffice.

TOMATO-PLANT: W. H. B. Wire-worm.

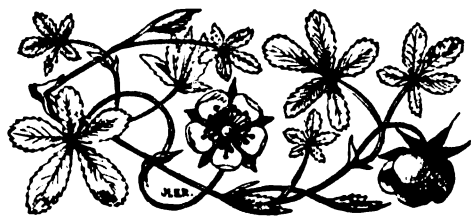
YEW TREES: E. B. The exudation from the main trunk is indicative of decay in that part; but as it is usual for this to occur in the Yew, it is not likely to result in the death of the tree. This death of the older stems or main branches of a Yew is Nature's method of renewal of vigour, and it goes on for hundreds of years. No Yew-tree of great age possesses its original crown of branches and secondary stems, although the lower part of the butt may not have decayed.

COMMUNICATIONS RECEIVED.—J. Peed & Son—A. J. L.—Dr. King—A. R.—H. W., Newport—Wargrave Gardeners Society—J. Moore—F. W. Smith—F. W. C.—W. J. S.—G. J.—A. P.—M. C. Rotheay—C. A. F.—J. C.—H. W.—R. Lindsay—H. T. M.—D. T. F.—A. S.—R. B.—Dr. E. R.—A. K. B.—W. S. P.—W. E. G.—M. Bryman—G. P. thanks—S. W. F.—Sir C. S.—B. D.—H. F.—J. E.—J. F. D.—S. T. W.—A. D. M.—D. McD.—J. R. S.—Martin—M. S.—H. H. R.—E. K.—W. W. E.—K.—Dr. K.

SPECIMENS PHOTOGRAPHS, &c., RECEIVED WITH THANKS.—Mrs. Ford—J. C., excellent specimens of *Marguerite Carnations*.

DIED.—On May 5, at his residence, 11, Pembroke Road, Kensington, Alfred Salter, age 76.

(For Markets and Weather, see p. xii.)



THE Gardeners' Chronicle

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LILIES.

THE Lilies which so greatly adorn our gardens have come to us from various regions of the world. *Lilium auratum*, *L. speciosum*, *L. longiflorum*, and many other species of the highest decorative value, are natives of Japan, which rivals Mexico in its vegetative exuberance and floral profusion. China has given us *Lilium Henryi* and *L. tigrinum*; from India have come *Nepalense*, *Lowi*, and the great Himalayan *giganteum*. *Lilium monadelphum* Szovitzianum, one of the stateliest and grandest of all eastern Lilies, pertains to the regions of Mount Caucasus; *Lilium candidum*, whose beauty can hardly be over-estimated—the loveliest contemporary of the queenly Rose—comes to us from the Levant; *Lilium chalcedonicum*, the beautiful “Scarlet Martagon,” from northern Turkey; *Lilium Humboldtii*, *L. pardalinum*, and *L. Washingtonianum*, from California. Coming, as these superbly endowed Lilies do, from so many different regions with varying climates, it is marvellous that they should be so comparatively easy of cultivation in our British gardens. All of them are hardy and vigorous in character, and withstand during the winter season and the still more trying spring, the most exacting and withering frost. Even that delicately-growing Lily, *longiflorum*

Harrisii, made tropical in character by cultivation in Bermuda, does not always succumb to the ordeal of our climate, however severe. Those Lilies, however, to which I have referred as being the best adapted for garden cultivation, require great shelter from devastating winds, such as they find in their native habitats; and if they have been assigned a sunny situation, they must have abundant supplies of moisture during the summer months. They are for the most part inveterate drinkers, and during an abnormally wet season their growth is astonishing. At the present date (April 25) I have *Lilium auratum* and *L. candidum* nearly half grown; all the other Lilies, notably, that graceful garden hybrid, *Lilium excelsum* (a cross between the Madonna and the Scarlet Martagon), exhibiting an almost equally wonderful vitality. Liquid-manure has sometimes been recommended by ardent cultivators for the stimulation of their growth; but it must be upheld (if it is to be done without injury) at an early stage; for I have not forgotten that, on one memorable occasion, I destroyed in this manner the entire flower-buds of my finest *Lilium giganteum*, when these were rapidly approaching the period of expansion into the consummate and immaculate flower. That this rapidly deteriorating influence was the work of ammonia I cannot doubt. Even for such a powerful grower as the gigantic Lily of the Himalayas, a mulching on the surface of manurial stimulants, whose effect is more gradual, and therefore less dangerous, should amply suffice. One of the most successful British cultivators of this grand Lily is Miss Gertrude Jekyll, authoress of *Wood and Garden*, who has occasionally grown *Lilium giganteum* in highly favourable situations to the somewhat unusual and commanding height of 11½ feet. Several of her giants have been artistically figured in *The English Flower-garden*.

Nearly all of the Oriental and American Lilies to which I have alluded, can be successfully cultivated in ordinary garden loam. *L. Szovitzianum*, however, may be regarded as an exception; for when first tried in my garden, where nearly every species of the Lily succeeds to perfection, I found that it was out of correspondence with its environment, till I planted it in clay. It is now one of the most vigorous of all my floral possessions, increasing in vigour and strength every year. This season it promises to surpass all its previous achievements in the direction of growth; and as the beginning is half the battle, I anticipate that this noble Lily will prove very effective during the flowering season; which, now that the inspiration of the spring is everywhere realisable, does not seem so very far away.

Of the Lilies best adapted for garden, the most reliable are *Lilium auratum*, *L. candidum*, *L. speciosum*, *L. giganteum*, *L. excelsum*, *tigrinum splendens*, *Davuricum* (erectum and incomparable), *croceum*, familiarly known as the “Orange Lily,” which is very accommodating; *Lilium pardalinum*, and *L. Humboldtii*, with their refined and richly fragrant companion *Lilium Washingtonianum*. Of the Lilies, whose influence is splendidly decorative, the most impressive is *L. giganteum*. Not so inevitably successful is the culture of *Lilium Kramerii*, or *L. rubellum*, whose unreliability is much to be regretted. *David R. Williamson, Wiltshire.*

FOREIGN CORRESPONDENCE.

WINTER ON THE RIVIERA.

I READ with interest in the *Kew Notes*, the list of New Zealand Veronicas classed according to their degree of resistance to cold. I think that such notes are eminently useful, and I will

endeavour from time to time to send you short communications about my observations of the resistance offered by plants to cold in this climate.

I am not aware that anyone, since the late V. Ricasoli, has made such observations systematically, and I do not myself pretend to have done so, my practical experience not yet covering a sufficiently long period. I shall, therefore, at least this time only write down, without any attempt at order, a few observations which may prove interesting to your readers.

This is the third mild winter we have had, and had it not been for a rather cold spring, and especially for two or three falls of snow and hail, very little injury or loss of delicate plants would have resulted.

The lowest temperature registered in my garden, at above 100 metres altitude, was 1.5° centigr. below zero, C.; at a point about 10 metres lower, + 2° centigr. was observed. At still lower levels the temperature may have descended still lower, but these parts being as yet not arranged and planted, I have no thermometers there. Recently a snowfall of 10 centimetres depth took place, and on the morning of March 5, when I looked out of my window, the garden had anything but a southern or tropical aspect, everything within sight being covered with snow. But the harm done to plants proved less than I expected at first, and this was owing to the rapid rising of the temperature, which at 8 A.M. was + 7° centigr. at 100 metres altitude, and + 6.5° centigr. at 90 metres altitude, but still more to the absence of sunshine until nearly noon; and, lastly, to the springing up in the late afternoon of a mild wind, which dried most entirely the moisture off the plants. The snow had disappeared nearly everywhere before noon, or a little after, when my two thermometers marked + 12 and + 11.5° as the highest temperature of the day. Had it not been that the plants were nearly dry everywhere, more losses would have occurred, because in the following night the temperature fell as low as to + 0.5, and 0.

But now let me rapidly name a few plants which are not generally supposed to resist snow and frost, at least by persons knowing such plants only from seeing them cultivated in the north under glass. I will just mention them as they come into my head. Among about twenty *Musa Ensete*, of which nearly half the number were in flower or fruit, those that were absolutely unsheltered lost most of their leaves, and this was mainly caused by the breaking off of the leaves under the weight of the snow. Others, in more or less sheltered positions, retained their leaves almost intact, losing only such as broke off under the weight of the snow. When I add that I have measured leaves 5.5 metres in length, it can easily be imagined what amount of snow they had to bear.

The *Cocos Romanzoffiana*, another very conspicuous ornament of southern gardens, suffered no injury except that some plants for a time lost some of their beauty by having their leaves bent down by the weight of the snow, and did not at once recover their normal erect position. I could name many species of Palms which passed through the ordeal of frost and snow equally well, but as I take a special interest in Palms let me leave them for another occasion, when I can write a little more fully about the resisting powers of and the essentials for succeeding with these plants, the greatest ornaments of southern gardens.

Among other very conspicuous plants that passed through the winter uninjured are *Musa sapientum* var. *paradisica*, which produces perfectly ripe and good fruits here, and if I certainly have eaten better I have also eaten worse Bananas in the tropics. This, I think, depends mainly on the varieties being better, as the fruits produced by my plants here were large and fully ripe. Still, I must add that the *M. sapientum* is a little less hardy than the *M. Ensete*, and that I have plants only in somewhat sheltered positions.

Musa Martini, a plant which is so similar to *M. sapientum* that I should not be able to distinguish

them if it were not that I have myself raised it from seed, has not suffered. Other Musas, as *M. Cavendishi* and *M. Livingstoniana*, have suffered much, and *M. superba*, which has survived, though losing its leaves, for three years, may this time be lost.

To keep to the Scitamineæ, let me say that the different *Hedychiums*, the *Alpinia nutans*, the *Strelitzia Augusta*, *S. Reginæ*, have not suffered.

Of *Aroidæ*, the *Richardia africana*, a great ornament here, has been in flower all the winter as usual; the *Monstera deliciosa* and *Philodendron pinatifidum*, where they were a little sheltered, have not suffered, and both species are in flower, while the leaves of *Colocasia antiquorum* are injured.

Looking round at other moisture-loving plants, I notice that the beautiful *Cyperus papyrus* is not injured, except that some of its stems are broken by the weight of the snow.

Now as to plants with opposite requirements—that is to say, those needing a dry situation, I find that no *Agave* has suffered, not even the very beautiful and soft-leaved *Agave attenuata*, whilst most of the *Furcraas* have damaged leaves, though none is killed. In a group of *Cordylines*, I notice that *C. terminalis* and its variety *cannæfolia* are intact, while garden forms with coloured leaves have suffered much, and may even be lost. *C. Haageana* has not suffered; *Dracaena umbraulifera* seems lost, and also *D. marginata*. The well-known *D. Draco* has not suffered, nor *D. fragrans*, which flowers and fruits freely here, and exhales its exquisite fragrance for several weeks in summer. *Cordylina rubra* is uninjured.

Some varieties of *Begonia Rex* are unharmed, and I find the *Gloxinia tuberosa* are sound. *Iresine Herbstii* and its varieties have damaged leaves, which was not the case the winter before.

Of *Ficus*, some species, chiefly seedling plants and not sufficiently distinctive to have been named, seemed lost, but several well known species, such as *F. elastica*, *F. macrophylla*, *F. rubiginosa*, and *F. nitida*, are not injured; while others, as *F. Cooperi*, have damaged leaves.

As in the two foregoing winters, the very beautiful *Jacaranda ovalifolia* has not lost its leaves, except in absolutely unsheltered positions. I remember having read somewhere that this tree is deciduous in its native country, Brazil or Colombia. Here the plant retains its feathery, fern-like foliage all the year, for only after nearly all the new leaves have entirely developed do the leaves of the foregoing year drop. I doubt if any other tree surpasses *J. ovalifolia* in beauty when covered with its large panicles of flowers of the purest violet-blue colour. I may add that this tree is very rapid growing, even in dry, poor soil, and ripens its fruits perfectly.

Of winter-blooming plants, some have suffered a little, notably *Astrapea Wallichii*, but still its flowers are now developing. The different *Eupatoriums* and *Salvias* have not suffered appreciably; for instance, *Salvia gesneriflora*, though one of the more tender *Salvias*, has been a mass of the most gorgeous red all through the winter. Several well known garden hybrid *Verbenas* have flowered all through the winter, as have the *Heliotropes*.

As to creepers, even rather tender species, such as *Stephanotis floribunda*, is not injured, and several *Passifloras* and *Tacsonias* have shown some flowers; while the *Bougainvilleas* have flowered profusely, and not suffered.

But I see that my letter is becoming too long, and I will finish by observing that the exotic "fruit-plants" I cultivate here have nearly all resisted the frost and snow unharmed, among them certain species of *Anona*, *Psidium*, and *Lucuma*, while *Achras sapota* has suffered much.

THE AGE OF PALMS.

I am much averse from controversies, which rarely lead to any useful result, and the few remarks that I made here about the age and growth of Palms were merely intended to interest those who, like

myself, were not able to start a Palm-plantation when young enough, as Mr. W. H. Morse says, to enjoy the sight of specimen plants before attaining the age of fifty. It frequently happens that people on taking to gardening have already reached that age.

I must first admit that I have never been at Santa Barbara, California, but have lived only at San Diego, Santa Monica, Pasadena, and Los Angeles, mainly in the two last-named places, where I knew, about ten years ago, every garden, and endeavoured, as I now do here, to ascertain the age of the different plants I saw.

Their development, as I wrote in the *Gardeners' Chronicle* of March 3, 1900, seemed to me about the same, as I found later to be the case here, as also the climate is about the same. Now, certainly the climate of Santa Barbara and its soil may be much more favourable to Palm-growth than that mentioned of the other places, and when Mr. Morse gives the exact age and size of several Palms, I am convinced that he does so on reliable authority, and he has rendered me, and others interested in the question, a real service, such as it would be desirable if many other Palm-growers would also render. Still, all the species he names are very hardy, especially *Washingtonia robusta*, that is astonishingly rapid in growth, even in its first year.

The question of the growth of Palms is not affected only by their being planted out in the open ground as soon as they have germinated, as this can safely be done with all hardy species.

As everyone knows who has raised Palms to any extent, and of many varieties from seed, there are many that even under the most favourable conditions, whether cultivated in pots or in the open ground, can never be induced to produce more than a certain very limited number of leaves the first year.

In conclusion, I merely expressed a doubt respecting the age of the two Palms that were described in the *Gardeners' Chronicle* of Feb. 17, 1900, and I was, I think, right to do so, because their age was not stated in an absolute way. I repeat, that from all that I have seen, the two species in question, *Archontophoenix Cunninghamiana* and *Cocos plumosa* (or the Palm which generally goes under that name), do not make such growth as is there stated; while the numerous, quite hardy species, which Mr. Morse names, produce here a growth which for nearly all of them corresponds, and for some even occasionally surpasses the measurements given by him for the specimens growing at Santa Barbara, California. *A. R. Proschowsky, Grottes St. Hélène, Chemin de Fabron, Nice.*

PLANT NOTES.

CALCEOLARIA VIOLACEA.

THIS plant does not seem to be so well known as it deserves. I judge from the large proportion of my visitors, to whom it is a novelty, and who ask for a bit. It was given to me more than twenty years ago by the late Rev. Harper Crewe, who told me it was hardy; and so it is, but it dies down out of doors much below the ground line, and does not appear again till June, making no flower. As a cool greenhouse plant, cultivated in large pots as a shrub, it is covered with flower from January to May. It is figured in *Nicholson's Gardening Dictionary*, and in *Gardeners' Chronicle*, Dec. 29, 1855, p. 852; the cleft cup-shaped flowers are pale violet, prettily spotted, and have a yellow patch on the lower lip. As I have said above, it attracts more notice than any plant I have in flower in March in my greenhouse. I do not know whether it survives the winter, cultivated as a shrub, in any part of England. It is not like any other *Calceolaria* I know, in the form of its flowers and leaves, and its habit of growth. *C. Wolley Dod, Edge Hall.*

RHIPSALIS SARMENTACEA AND *R. LUMBRICOIDES*.

At first sight these two plants appear to be identical, as I myself once thought. I noticed

last year a difference in the growth of them, and wondered what the cause for this might be; but on looking more carefully over them, the difference was plainly visible, and very marked. *Rhipsalis sarmentacea* is spiny all down the stem, and very thickly furnished with aerial roots on the under side; the spines are stronger and thicker in a bunch; the flower-bud standing in a much more erect position, and darker in colour at the base, and the flower not so compact either. *R. lumbricoides* is more green in its growth, and the young portion for some distance is nearly bare of spines; and then it begins to spine freely, but they are finer and thinner bunches than in *R. sarmentacea*, and the aerial roots not a quarter so thickly placed; the flower-bud is also quite different, lying nearly flat on the stem, the tube being shorter and rounder, and the bud more nearly egg-shaped; the flower also more compact, a little over $\frac{1}{2}$ -inch in diameter, and the plant flowering earlier altogether. I am pleased to have the two varieties. *R. setulosa* very much resembles the others, but it is very much larger in growth, and has no aerial roots; I have never yet seen its flower. *J. C.*

BRITISH FORESTRY.

(Continued from p. 258.)

IV.—THE FOREST OF DEAN: AN OBJECT LESSON.

IN my article on "The Production of High-class Oak, Ash, and Larch Timber," published in the *Gardeners' Chronicle* of May 5, I drew special attention to the importance of raising these light-demanding and thin-crowned timber-trees in mixture with a full-crowned, shade-bearing species, such as Beech or Silver Fir. This method of rearing our valuable trees has for its principal object to secure a continued fertility of the soil. As some of your readers may raise the cry of "theoretical speculation"—a cry so frequently heard when people do not understand a subject—it will be useful to fortify my position further by producing an example in point. It is, alas! a negative example, but it will serve its purpose. My example is the "Forest of Dean."

Any person with a pair of eyes, who visited the Dean six or seven years ago, and made his way across the several woods, found on by far the greater part of the area, a thin crop of Oaks from eighty to ninety years old, of poor height growth, with rounded or flat tops, and the branches coming down low, so that only clear boles of small length were formed. Looking down on the ground our observer would see the soil covered with a very felt of grass and weeds, overrun with brambles, &c. Presently the wanderer would probably come across a solitary old Oak or two of magnificent dimensions, towering high over the eighty to ninety years' old crop; the idea would at once cross his mind, that the flat-topped younger generation could never grow to the height of the few remaining old trees, and he would be sure to ask, "What has brought about this change?" I shall take the liberty of answering his question:—"The nineteenth-century foresters in charge of the Dean have ruined the former fertility of the soil by trying to grow Oak pure beyond youth, by excessive thinning, and by unrestricted grazing."

An enquiry into the past history of the forest has revealed the fact that, up to the end of last century, the Dean carried a mixed crop of Oak and Beech in the proportion of one Oak to two Beeches; under these conditions the fine Oaks of enormous size were produced, which made the forest renowned, and provided large quantities of first-class timber for the "walls of Oak" of Old England.

This fine crop of timber was cut early in the 19th century, with the exception of about 500 acres, which were cut in 1852-53, and yielding an average of 154 cubic feet of timber per tree, according to quarter-girth measurement. The cleared areas were replanted in the year 1809 and following years, so that most of these woods are now about ninety

years old, and the rest forty to fifty years. As far as is known, Oak was planted with nurses, the latter having been cut out subsequently. And then the disastrous treatment commenced. When the woods had reached the age of thirty or forty years, they were considered safe against cattle, and the greater part of the enclosures were thrown open, especially to extensive sheep grazing. About the same time it was considered the correct thing to thin heavily, and this was done during a number of years, until the trees were practically isolated. What the result of these operations is, has already

six years ago to mend matters. There were, however, great difficulties in the way. In the first place the areas, so ruthlessly thrown open, had to be re-enclosed, and this can only be done gradually; however, good progress has already been made, as several thousand acres have been fenced, and others will follow, until the whole area of 11,000 acres allowed by law have once more been brought under proper control. In the second place, the authorities had to consider what to do with the existing woods. In consultation with Mr. Hill, of the Indian Forest Department, they decided to under-

similar to that which existed a hundred years ago, and to build up once more the old fame of the forest.

We have heard lately, in the pages of the *Gardeners' Chronicle*, about "The New Forestry." Alas! it seems to me what is really wanted is to return to "The Old Forestry," and to eliminate as quickly as possible the errors introduced into British forestry by the nineteenth century forest experts. These gentlemen were in too much of a hurry. "Quick returns regardless of consequences" was their maxim, and now they have almost ruined



FIG. 98.—GROUP OF VANDA TREES GROWN AT GUNNERSBURY PARK, ACTON, AND EXHIBITED AT THE ROYAL HORTICULTURAL SOCIETY, ON TUESDAY, MAY 8.

(For a notice of the group, see p. 302 of our issue for May 12, under "Orchid Committee.")

been indicated. The soil, exposed to the unrestricted action of sun and air currents, became in most parts practically unproductive, the result being a very inferior crop of unpromising Oaks. How different might have been the results, if, instead of throwing open the enclosures and making senseless thinnings, the Oak had been underplanted with Beech at the age of thirty to fifty years, thus keeping the soil under constant protection, and causing a gradual accumulation of fertile leaf-mould on the soil.

It is due to Mr. Stafford Haward, Commissioner of Woods, and Mr. P. Baylis, Deputy Surveyor Forest of Dean, to say that they recognised the unsatisfactory state of things, and set to work some

plant with Beech the limited area of woods under fifty years old, where the mischief could still be remedied as quickly as the occurrence of Beech-mast years permits. The older Oak woods, about ninety years old, demand a somewhat different treatment, and this was commenced by Mr. Baylis about six years ago. In these woods, only Oaks of some promise are left, all others being cut out; then all blanks are filled up, chiefly with Larch, Oak, and other trees, such as Sycamore and Ash; and in suitable places Spruce and Douglas Fir. As soon as these young plantations have made a fair start, Beech will be brought in over the whole area, so as to return to a state of affairs

national property of an enormous value, inasmuch as they have considerably reduced the fertility, or yield capacity, of the soil. It may indeed be said that the competency of a forester can be judged by examining the soil in his forests: if there is a good layer of leaf-mould on the ground, the management is sure to have been good; if not, undoubted mistakes have been made, which should be eliminated as quickly as possible.

No doubt, some readers will say, this is all very well, but what are we to do with so much Beech, which fetches only a small price per cubic foot? The answer may be given by another question:—What is done with Beech in Buckinghamshire and

adjoining counties? Why, it is made into chairs and other articles of furniture, and it fetches at least a shilling a foot all round. In other words, provide the raw material, and industries to work it will soon spring up. They follow the raw material. Beech-wood is coming into use more and more every year, and only the other day I saw it mentioned that paper pulp had been successfully made from it. Besides, the Beech need not occupy more than half the crop, or it may be kept almost altogether below the Oak.

I have seen an Oak-wood growing on a moderately good soil, overlying old red sandstone, which, at 100 years old, had a mean height of 85 feet. It had so far produced 5,300 cubic feet, quarter-girth measurement, per acre, and underneath was a full crop of Beech fifty-four years old, and about 40 feet high, which had cleared the Oak of branches to that height, and was making its way up steadily, thus just fulfilling the purpose for which it had been introduced. This is not a hypothetical wood, but one which I have measured myself. *W. Schlich, Cooper's Hill, May 10, 1900.*

FLORISTS' FLOWERS.

PINKS AND AURICULAS IN THE OLD DAYS.

MANY of the florists who sprung from the ranks of the workers during the past century, began with the cultivation of the Pink. One of the leading florists of the north—John Slater—who was a great light among the fraternity fifty years ago, once said he began his floricultural career somewhere about the time of the battle of Waterloo by growing Pinks. Pinks in those days were rapidly undergoing transition; among the leading varieties were Midshipman, a very fine laced variety; and Davy's Eclipee, a black and white. In order to make this last section more clear, it should be stated that it is a variety which has the dark centre peculiar to the laced Pink, but without any lacing on the petal margins, a type it is extremely difficult to obtain among seedlings of laced varieties. At this time the Pink was undergoing material change, the fimbriated petal edges were giving place to those with smooth and rounded margins, while the lacing was being made more and more distinct and symmetrical. A Mr. Bow, at that time, raised many varieties of improved character, which superseded the red ones; he, in his turn, was beaten by other and later raisers, and this interest led to the Pink becoming very popular as an exhibition flower.

It appeared to be a natural transition at that time to go on from Pinks to Auriculas. John Slater states that he obtained a collection, and for want of a frame, wintered them under a large flagstone, elevated about 18 inches from the ground; and, simple as the plan was, the plants did well, and increased rapidly. That the county of Lancashire was the early home of the Auricula, there can be no doubt. It was there that the Flemish weavers, driven from their homes by religious persecution, came, about 1570, bringing with them as things too precious to be left behind, their Auriculas and Tulips, and perhaps other floral pets. Immediately after the settlement of these Flemish weavers, Lancashire became famous as a manufacturing district, and celebrated for its peculiar goods, called cottons, though made of wool. But no actual evidence of the introduction of the Auricula into Lancashire can be had before 1725, and from that time the florists of Middleton in particular gained considerable pre-eminence as cultivators. It is on record that there was an Auricula show at the "Mason's Arms," Middleton, which continued for seventy years, and was generally held on the first Monday after the 20th day of April.

Jas. Fitton, of Middleton, was the oldest grower whose doings with the plant found any record. He died about the time of the battle of Waterloo, and began to cultivate Auriculas at the age of fifteen, and died at the age of eighty-six. Another noted

grower of that time was John Partington, of Tonge, a small township adjoining Middleton. He began their cultivation when he was about fourteen years old. The principal growers then were the brothers Buckley, one of whom raised a green edge named Jolly Tar. John Grime, of Royton, the raiser of Privateer, a variety still to be found in some collections; John Taylor, of Royton, who raised Glory, a white edge, still worthy of cultivation; William Kenyon, of Middleton, who raised a very useful grey edge called Ringleader; John Heya, Castleton Moor, the raiser of Heya's Lovely Ann, grey-edged—Heya being a distinctly Flemish name. These were the pioneers in the work of Auricula improvement, and by their acts led on the flower to excellence.

One hundred years ago a considerable number of varieties of Auriculas were in cultivation, and while it is probable that then, as in these days, a variety appeared once or twice only and then became lost, yet many were grown for a considerable length of time, as growers were many, and some sorts gave very slow increase. Auricula shows were then many, and possibly each village and township had one. About 1785 several new varieties were introduced, among them the yellow self, Gorten's Stadtholder, now in all probability utterly lost, but which has a worthy successor in Horner's Buttercup. By 1821 such fine varieties as Colonel Taylor and Both's Freedom, green edges; Lancashire Hero, grey edge; Taylor's Glory, white edge, were being exhibited; and it was such as these, with other varieties subsequently introduced, which afforded the material the Rev. F. D. Horner employed as progenitors of his greatly improved varieties.

There is no evidence on record to show that the Auricula raisers of a century ago understood or practised cross-fertilisation. It would seem they simply depended upon such seed as certain varieties produced, and in this way attempted to improve their collections. But they grew nothing but the show or stage varieties; the alpine type was then almost, and perhaps altogether, unknown, and there was nothing in the way of alien pollen to be conveyed by insects to their flowers, unless gathered from some inferior forms in the open border. Means of communication between different parts of a county were restricted, and the raisers in one village probably knew but little of what was being done in the next.

The ardour shown in the preference for, and a desire to cultivate any particular flower, ebbs and flows like the tide. There is the low tide of comparative neglect, and the high tide of popular favour. We have seen the ideals of popular flowers change, and what a previous generation of florists frowned upon, a succeeding generation accepts as most desirable. We see this to a large extent in the case of the Japanese Chrysanthemum and the Cactus Dahlia, and it is quite reasonable to imagine that in a few years the rounded, smooth edge to the petals of the Carnation, Pink, Pelargonium, Begonia, &c., will give place to fimbriated ones. It is going on in the case of the Butterfly Cyclamen, the Begonia, the Chrysanthemum, &c. The ideals of one generation undergo modification by the succeeding one, and that is why it is so many of the "points" insisted upon by the old school of florists are largely ignored in the present day. But they will never be altogether lost, and will never lack advocates in the present and future. *R. D.*

BULBOUS IRISES.

(Continued from p. 212.)

THE SUB-GENUS JUNO.—This group of Irises include the well-known *Iris alata*. They have tapering, sessile, deltoid leaves, more or less lax. They differ from the reticulata group in having, with one or two exceptions, several flowers to each bulb, the styles being markedly bifid, prominent, with serrated edges; the falls are fairly broad in the apical half, and the "standards" are very small

and declinate, without rich colouring. The prominent position of the standards at the top of the flower in the reticulata group is occupied by the cleft styles in the group of which *Iris alata* is one, thus rendering the flowers less rigid in outline. They all have permanent, fleshy roots, which resent disturbance, and are on this account, ill-fitted for bedding purposes; but the bulbs should be carefully lifted and planted in fresh soil every three years. Those which naturally flower at a period when unfavourable weather may be expected, should be grown in pots, plunged in the border, removing them to shelter as the flowers appear, returning them to their permanent quarters, still in the pots, as the flowers fade, and the weather proves suitable. They succeed under the same general treatment advised for the reticulata group; but a sharp look-out must be maintained against slugs, which are especially fond of the leaves and flower-sheaths as they appear above-ground.

Iris alata.—This plant is one of the most common in cultivation, and is one of the earliest to flower. It produces a distichous tuft of six or more leaves in late autumn, and usually one flower in December. It is large, lilac-coloured, with deeply bifid, undulating styles, wide wavy "falls," coloured deep blue in the apical half, with a blotch of yellow in the centre, which is occasionally streaked or spotted lavender. It rarely produces more than one flower, and that half-buried in the foliage. It likes a warm situation on the rockery, and does best planted close to a sheltering boulder.

I. assyrica.—This species much resembles *I. orchoides* in its habit of growth and method of flowering. It produces from six to eight flowers, each measuring three inches across, and of a uniformly pale lavender colour; and the blades of the falls are almost white. Two parallel black lines on either side of the yellow ridges help somewhat to give brightness to the flowers. The colours are delicate, but not showy; moreover, the leaves suffer considerably from frost, and, partially withering, obscure the flowers nestling in their sheathing bases. The plant does well in the warmer parts of the country, and it may be cultivated in a pot in a cold frame.

I. caucasica, a common though not very ornamental species, with pale glaucous, occasionally yellowish, broadly lanceolate leaves, and small, very dwarf flowers, which appear in March and April, three of which are produced in succession on strong plants. They average 3 inches across, are mostly coloured greenish-yellow, the falls alone being pure yellow, sparsely spotted with dark blue. *I. caucasica major* (*turkestanica*) is by far the better plant to grow, being larger in all its parts; of a hardy constitution, and coloured brilliant yellow. In some forms the styles and basal portions of the falls have the rich tint seen in *Iris juncea*. It flowers with the type in March. Of the two plants the variety is the most vigorous; it will grow almost anywhere, if kept dry and well rested during late summer. *G. B. Mallett.*

(To be continued.)

WHITE IN THE GARDEN.

I do not know that the position of white as a potential agent in decorative gardening has ever been defined; perhaps, indeed, it is impossible to define. We perceive and feel its restfulness in a Cherry orchard in the month of April, and at such time as the Hawthorn silvers a whole countryside, as Gowans whiten the haughs and meadows in May, without staying to ask ourselves the reason. And in gardening in much the same way, we employ, I think, white largely as a matter of course without considering the reason for so employing it; yet it is powerful in a degree beyond many definite colours, some of which we can safely ignore without losing anything in effect. White, on the other hand, is essential and may not be lightly neglected. Its importance arises largely because of its capacity to relieve without diminishing the brightness of

strong colours, while it emphasises in an equally effective manner, the softer secondary and tertiary colours. Beyond that white, *qua* white, occupies a high position in decorative gardening, perhaps second only to yellow. Had white been employed in bedding-out in the past in the degree and to the extent it ought to have been, there would have been no reason for an outcry against the system on account of its vulgarity, and its want of good taste. The same class of plants, bright Pelargoniums,

other plants. It is never out of place, and in this respect, unlike green, which is generally too dull, it enhances the effect of other flowers.

It is, however, in groups or in long borders of hardy and half-hardy plants that one experiences the fullest revelation of the unique qualities of white. The difficulty of matching or harmonising colours in mixed planting is admittedly great; few caring to limit themselves to flowers possessed of colours complementary the one to the other, and I

indefinite purples should, I think, be certainly excluded as being invariably depressing, and therefore of no value. These remarks, however, by the way; white being indubitably cold, on that account some may hesitate to employ it to the extent, I feel sure, it ought to be used—for although cold, it fortunately does not chill, and when proper subjects are selected it lends a dignity, and adds a grace that otherwise would be absent. For these reasons, not a little judgment must be exercised in selection. Plants of a bold, imposing aspect are more to be preferred to all others, and in choosing suitable positions, preference should be given to those where the flower will be best seen. Among the choicest of all white-flowered hardy plants are *Lilium candidum*, double white Hollyhocks, *Galtonia candicans*, white English Iris, *Campanula pyramidalis alba*, and *C. persicifolia*; various *Spiræas* and *Astilbe vivularis*, *Lupinus polyphyllus albus*, *Chrysanthemum uliginosum*, white Phloxes, white Carnations, and various white Asters. To these may be added *Nicotiana affinis*, *Richardia æthiopica*, white-flowered China Asters of the Comet section, and perhaps *Francoa ramosa*. It is noteworthy that nearly all of these plants possess either a stately or a graceful appearance that enables the gardener to place them in positions that show them up boldly from their surroundings, and so bring into greater relief what is more remarkable in them. Irises, Carnations, *Francoas*, and Asters would thus be arranged near to the front, *Richardias*, *Liliums*, and *Campanula persicifolia* slightly further back. White Hollyhocks would best fulfil its mission towards, but not wholly, at the back, and the *Galtonia* and *Michaelmas* Daisies in the middle are not limiting them to closely defined positions, nor placing them in any regular order.

The value of some of these plants is greatly increased by massing a number together, say of nine to a dozen Hollyhocks, twenty to thirty *Galtonias*, or two dozen Carnations; but of the Lupine, *Campanula pyramidalis*, and Phloxes, a lesser number may be used together quite effectively. If there should be a fear that the employment of so many white-flowered plants so conspicuously arranged will dominate other neighbouring plants, it will not in reality do so. Of the plants named, Hollyhocks and the *Liliums*, and in a less degree *Chrysanthemum uliginosum*, are the only ones that are aggressive, and stand distinctly out from all others. As a matter of fact, the predominance of white is not obvious to the majority of people, and it is only those who examine critically who make the discovery that more white than usual is employed, and they are fewer still who find out the reason why it is used.

But though these plants are arranged in prominent positions, it would be unwise to limit the employment of white-flowered or white-leaved plants to these only. Their mission is to tone down, to impart a restfulness to masses of bright colours, when viewed as a whole. But a great charm of mixed planting would be lost if the possibilities of quiet little groups which meet one only on a close inspection were unrealised. Here low-growing, white-flowering plants lend happy effects, softening deep yellows and bright reds, and affording an added beauty to quieter colours. Here, also, room can be found for the coldest, purest whites, which, if more prominently disposed, would be positively distracting; and it may also be noted that warm grey, green, and yellow-whites are greatly to be preferred to pure white for the purposes noted above. *B.*

ALPINE GARDEN.

SAXIFRAGA SALMONICA (?).

In this garden there flowered this year for the first time a small example of what is obviously a good gardening plant, and apparently a cross exactly intermediate with what I regard as its two parents, viz., *S. Burseriana* and *S. Boydialba*. The plant is inter-



FIG. 99.—TULIPA BORSZCZOWI (PRONOUNCED BORSHOVI): COLOURS—OUTER SEGMENTS RED EXTERNALLY, YELLOW WITHIN; INNER SEGMENTS ALL YELLOW.

(This species was shown by Miss M. Wilmott, of Warley, at the meeting of the Royal Horticultural Society, on May 8, 1900, when it received an Award of Merit.)

yellow *Calceolarias*, &c., are still being employed in exactly the same positions and with, generally speaking, greater satisfaction, on account of a more general recognition of the value of white. By the simple expedient of running a broad band of white, such as *Cerastium tomentosum*, *Koniga variegata*, or some white-flowered plant, round every bed of a series, it is difficult to plant the beds so glaringly bad as to call for the sort of reproach that was not undeserved in the past. The value of white is also disclosed when employed as a carpet on which to stand

imagine that the rule is to introduce as many colours and shades as possible, which accentuates the difficulty. It is a fact, perhaps not sufficiently recognised, that the introduction of white flowers in a proportion greater than any other kinds at once solves this difficulty, and renders what might have been otherwise a bizarre, or positively low-toned arrangement, one of really good effect.

My own opinion is, that nothing is gained, and therefore something is lost by introducing all manner of shades into mixed planting. Lilacs and certain shades of blue, as well as dull reds and

mediate in several features, but introduces a novel and interesting feature into these very early flowering-plants. The plant stood during the entire winter side by side with *S. Burseriana* and *S. Boydi* without being plunged. The former was almost out of flower after completely covering a pot 6 inches across with its satin-white flowers; while the yellow *S. Boydi* was on March 10 giving the smallest shade of colour in its buds. The subject of this note had its earliest flowers open about March 3. The rosettes forming the tuft are smaller than in the other species, less spiny, awl-shaped, and acuminate. The leafy scape bears the same reddish hue that is characteristic of *S. Burseriana* in the earlier stages, but is fully 1½ ins. high, independently of the blossoms; the latter borne in threes, while in *S. Boydi* they are in threes to fives, and in *S. Burseriana* solitary. Individually, the blossoms are of the whiteness and texture of *S. Boydi* alba, solid looking, and very lasting. A rather novel feature is that for more than a week the open flowers remain either slightly drooping or quite horizontal, and in this recalling somewhat the flowering of the rare *S. aretioides* primulina. Altogether, it is a highly interesting plant. I may remark that the parentage is only suggested. I shall therefore feel grateful for any definite or authoritative information on the point.

SAXIFRAGA PELTATA.

Quite recently, and by means of an excellent illustration (fig. 42, p. 139), attention was directed to the value of this plant for moist spots. It is usually given credit for usefulness in such position, and is well known for its floral beauty. At the time it was stated, by way of reference, how well the species succeeded in the rock-garden at Kew under the moist treatment, but I think too little is known of the beauty and value of the plant when grown without the constant moisture in the soil. It is significant, too, that the Kew Gardens can equally demonstrate this fact, this time, however, with examples quite three times the dimensions of those in moisture. The group I refer to is at the top (Cumberland Gate) end of the herbaceous ground, and a bed quite 9 feet by 6 feet affords a fair idea of what the plant is capable of without constant moisture. I have only to add that the petioles were nearly 6 feet high in order to show the great vigour of the plant. I confess it was quite a surprise to me, for although I have grown it here in very sandy soil, I had never supposed that it could reach such dimensions unless near water. *E. Jenkins, Hampton Hill.*

THE APIARY.

RATS AS ENEMIES TO BEES.

BEES, in common with all classes of the animal kingdom, have many enemies. Of their own genus, Hymenoptera, the wasp, and bumble bee, are ever on the watch to enter and rob the hive of the honey-bee. It is curious to observe the perseverance of these intruders. Again and again turned out, stung, and mangled, the bumble-bee or wasp, if reviving, will speedily try again. Moths also seem to set at nought the probability of stings, and enter the hive and deposit their eggs, doing more or less damage. Snails, protected by the shell, if a hive be too near the ground, will crawl in, much to the disgust of the bees. Instances are on record of bees forcing the enemy into a corner, and covering him over tightly with wax to rid themselves of the sight of the monster. Mice also will prey on the hives, unmolested in a severe winter.

Among other enemies, however, rats are a most formidable one, watchful and wary, they can only keep their footing when the bees are in a totally or semi-dormant condition, which is usually during the months of December, January, and February. The only entrance to the ordinary hive is about 2 inches long by half-inch high, but this difficulty the proverbial intelligence of the rat soon gets over, and another means of ingress is at once discovered. The wooden floor of the bar-frame hive is not thick, and of ordinary deal wood. The sharp teeth of the rodent soon gnaws a hole, and the

whiskered enemy takes possession. A friend of the writer in March of this year noticed that though the bees generally were out in the sunshine from one hive, none were issuing. A feather passed through the entrance-aperture brought to light a few dried heads and legs of defunct bees—a sure sign of mischief. A stir in the interior suggested “mice,” and the hive was at once uncovered for inspection. Immediately below the lid the winter wrappings of hay, sacking, &c., were partially gnawed away, and on removing these several rats pushed up inquisitive heads. Means were at once taken for their capture, and five full-sized ones were discovered, while in a snug corner were a family of promising juveniles. Honey, wax, and bees, had all disappeared, only a few less desirable portions of the latter strewn the floor. The rats had entirely taken possession, and found comfortable winter quarters.

Doubtless many a hive which has been found in spring, empty alike of honey, wax, and bees, and no apparent reason for the loss, may have been caused by an inroad of rats. Rats are often seen watching near hives, even lying on the top; this is, probably on the watch for rats. The bee-keeper would be wise to set a trap in a bee-shed.

Rats have been seen prowling about the hives of the writer, and some poor sections of old honey having been put outside for the bees, a big rat was seen gnawing it—fresh sections covered by a box, allowing only supposed ingress for bees from below. Both honey and wax disappeared in an incredibly short time, plainly showing rats had been the depredators, both from the holes gnawed, and also from the fact that bees empty the comb of honey, leaving the wax intact.

As a wise precaution, a bee-shed should not touch either a hive or any part of its covering by at least 1 foot, and the hives should be raised from the ground some 18 inches on an iron-rod framework or stool, allowing only of the hive resting on it at back and front edges—as by this plan rats cannot force an entrance above. Bees on the alert quickly sting any intruder to death, but much damage can be done in the dormant months of winter.

Another enemy of bees is the tom-tit, (?) who preys on weak members of the community when outside the hive, but can do no harm to the interior. *Martia.*

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen, S.W.

Lælia-Cattleya elegans.—The various forms of this natural hybrid are less easily cultivated than hybrids that have been raised at home; but as in the case of many other Orchids, the difficulty is largely one of unsuitability of position. The best position must be found by experience, but generally, it has proved to be the warmest part of a Cattleya-house. Although baskets are not recommended generally for Cattleyas and *Lælia*, they appear for the present to be the best receptacles for *L.-C. elegans*, whose roots do not appreciate confinement in pots or pans. Baskets being lighter are also more convenient for suspending; and plants suspended near to the glass succeed best. I have already stated that the difficulty and danger attending the removal of an overgrown plant from one basket to another prevents me from recommending the use of them in cases where success is obtainable by other means. Plants of *L.-C. elegans* and its varieties do not all flower at one time, nor should they be disturbed at one time. Many plants are, however, blooming now, and in most instances root action will follow; therefore, these may be resurfaced or potted. When grown in pots, large quantities of drainage must be used; and the rhizome of the plant be well raised on a mound above the pot, that the roots may be given greater freedom. Plants that are put into baskets should be given ample room to extend for some time to come. In both cases, use equal parts of peat and sphagnum-moss, and insert a piece of crock edgewise here and there, to facilitate drainage. Plants which have been disturbed must be very sparingly watered until they are thoroughly re-established, but keep the surroundings moist with the syringe. The forms known as *L.-C. elegans* Schilleriana, having *C. intermedia* as one of its parents, instead of one of the *C. guttata* forms, is a freer grower, and less liable to disease.

Plants of both sections should be kept well on the dry side during the resting season, and at no time should the roots be subjected to prolonged saturation.

Cattleya intermedia often fails when least expected. It is a very rapid grower, and every means should be taken to produce solid and mature pseudo-bulbs. A too strong light disfigures the leaves, and deep shade will induce black rot; consequently, intermediate conditions should be given, and an abundance of fresh air. New roots will appear at the base very soon after the plant has flowered, and the rooting-medium should then be given attention, as in the case of *L.-C. elegans*.

Lælia crispata almost completes its pseudo-bulbs and leaves before root-action is awakened; and till then little more than atmospheric moisture is needed. When roots do appear, re-surfacing or repotting may be done, gradually increasing the water-supply afterwards. The pots should be fully three-parts filled with drainage, and a mixture used of half peat and sphagnum-moss, staging the plants in a light, warm position in the Cattleya-house. *L. Perrini*, now commencing to grow, may be treated similarly.

THE FLOWER GARDEN.

By J. BROWN, Gardener to the Earl of Rochester, Abbotsbury Castle, Dorset.

Bedding Out.—Should frost not interfere with planting-out, the work may now commence in earnest. Among the first plants to set out are the hardy species of *Sedum* used as edgings, &c., *Cerastium tomentosum*, and *Echeveria corymbosa*. An edging is more effective when planted in double or treble rows. The planting of zonal *Pelargoniums* should follow, and if the plants are sturdy and well rooted, they will soon make growth. The handiest tool in bedding out is a hand-fork, as with it the soil is readily pulverised, and the ground levelled after planting. Care should be taken in turning the plants out of the pots that the ball is not broken, and that the soil is properly moistened some hours before the work begins. When the weather is favourable for the growth of the plants, *Pelargoniums* will not require more than two applications of water before July, when if the soil be of a light description, diluted liquid-manure and clean water may be needed to keep the plants in vigorous health. At this date the watering-pot should be used without a rose, and the flowers and foliage should not be wetted while the nights remain cold. Such plants as are more tender than *Pelargoniums* should still remain under the temporary shelter, but using the coverings less and less as the sun's heat increases. Amongst these tenderer plants are *Celcosias*, *Fuchsias*, *Verbenas*, *Lobelias*, *Alternantheras*, the variegated *Mesembryanthemum cordifolium*, and *Heliotropes*.

Subtropical Bedding.—The artificial warmth of the houses in which are standing the specimens of *Palms*, *Ficus*, *Abutilons*, *Wigandias*, *Musae*, &c., which will be employed in the beds, should now be reduced, and air freely admitted by day, the upper sashes or ventilators being left partly open during the night when the air is mild, but closing them early in the afternoon if frost seems imminent. The aim of the gardener should be to impart a hard texture to the foliage before the plants are placed out-of-doors, and this is best done by placing them in sheltered places near buildings and under trees.

Hyacinths and Tulips.—As fast as the flowering of these bulbs ceases, let them be dug up carefully, and planted in lines in rich sandy soil, in the reserve garden. It is good practice to manure such land with cow-manure and soot. These bulbs may be used for a number of years in the mixed borders. It is an admitted evil to have to disturb Dutch bulbs at this season, but where summer bedding is required, the bulbs and spring-flowering plants must be removed by the end of the month. After the beds are cleared, no time should be lost in dressing them with decayed short stable-manure, and digging the ground.

Annuals.—Those first sown will now require to be thinned at such distances apart as the future growth demands, and in all cases the space should admit of the use of a small hoe or the hand-fork. *Chrysanthemums* and *Poppies*, after being thinned, should have the soil stirred with a Dutch-hoe. If sufficient space be afforded flowering annuals, and some artificial manure be strewn over the ground before rain, the size of the flowers and their duration is greatly increased.

PLANTS UNDER GLASS.

By T. EDWARDS, Foreman, Royal Plant Gardens, Frogmore.

The Stove.—Gloxinias, Begonias, and Caladiums should be examined, and any that have filled their pots with roots should be repotted before becoming pot-bound. Let a sharp look-out be kept for thrip, especially the minute Thrips that are met with on Gloxinias and Achimenes. On the first appearance of this pest, the plants should be vaporised for two or three successive nights, the vaporising being repeated after an interval of nine or ten days. The plants should be stood at wide distances apart, and kept close to the glass, and afforded the usual treatment of stove-plants.

Poinsettias.—The first cuttings being now ready, may be taken and inserted singly or in 3's and 4's in small pots filled with sandy loam, plunging the pots in a dung-bed frame, the vapour from which, being largely charged with ammonia, sustains the foliage until roots are emitted, and less syringing is needed than when the cuttings are rooted in a hot-house. The cuttings must be well shaded till the roots have reached the sides of the pots, when they may be gradually exposed to the sun. Continue the propagation of Euphorbia Jacquiniaeflora under similar conditions, but using rather more peat and sand in the compost with which the pots are filled.

Greenhouses.—Plants of Genista, as they go out of flower, should be cut severely back and stood out-of-doors; and when growth recommences, let them be repotted in a compost of half loam, quarter leaf-mould, and quarter well decomposed manure and sharp sand, and plunge in beds of coal-ashes for the summer.

Callas for autumn decoration are best kept in pots, and these also may be placed out-of-doors and allowed to rest on their sides until new growth begins, when they may be divided and repotted. For winter and spring spathes, half the stock may be planted outside forthwith, and the remainder for succession in June. Division of the roots should be done at the time of planting, the strongest being selected, and planted in well-prepared ground 18 inches apart each way, making the ground firm around them, and affording water. As growth advances, apply manure-water copiously. The small offsets may be planted at 1 foot apart.

Indian Azaleas and Greenhouse Rhododendrons.—As these plants go out of flower, all the blooms and seed vessels should be picked off, and the plants repotted in the case of those needing it. A good turfy peat and plenty of silver-sand, with about one-third of turfy loam in the case of Rhododendrons. Let the pots be clean and the drainage good, and the potting firmly done with a rammer. Place in an intermediate-house, affording water very carefully for a time, and syringing thoroughly, and closing the house early in the afternoon with sun-heat, allowing the temperature to rise to 80° or 85°.

Zonal Pelargoniums for winter flowering.—Cuttings put in as advised in March will now be rooted, and they may now be moved to cold pits and fully exposed to sunshine. Pinch off all flower-stems as soon as they appear; afford air freely, and later remove sashes altogether during the day.

Primulas may now be potted in 60's, and encouraged to grow by being placed in a warm pit. Cinerarias may be potted off and placed in cold pits. Sow Humea-seed for early flowering, and again at the end of June.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain Holford, Westonbirt, Tetbury, Gloucestershire.

Scarlet Runner Beans.—The first sowing should now be made in the open quarters; it is advisable to prepare the lines specially by extra manuring and throwing out shallow trenches, the seeds being sown in double lines, ranging at about 8 inches apart, a distance of 6 inches being allowed between the seeds. The seed should be covered about 2 inches with pulverised soil, and the whole area dressed with wood-ashes or fresh soot. If Runner Beans be grown together in a quarter, the rows should be 8 feet apart, and be inter-cropped with vegetables of dwarf growth. In gardens of small area, Runner Beans may be planted in circles 3 feet in diameter, and the bine trained to stakes. Ne Plus Ultra and Champion Scarlet are varieties of great excellence.

Beetroot.—If the Turnip-rooted variety was sown as advised in April, the plants will be fit for

planting out-of-doors. To do this successfully, the plants should be lifted and planted with care, being especially careful to plant the tap-root at full length in the holes made with a dibber. A space of 1 foot should be allowed between the plants.

Lettuce.—The forwardest of the Brown Cos Lettuces of last autumn's sowing should now be tied up for blanching so as to form a succession to the Cabbage Lettuces grown in warm frames, and at the foot of the south wall.

Onions.—The spring-sown plants may now require to be thinned for the first time, but much will depend upon the quality of the soil; but in any case the work should not be deferred till the bulbs have made much growth. The ground around the bulbs that remain will be much loosened, and growth hindered, especially if rough winds occur soon afterwards. Where there is a demand for young Onions, some rows should be left undisturbed. The main crop may be left in the rows at about 4 inches apart, at which distance mildew is not likely to injuriously affect them.

Broccoli.—If seed of late varieties be now sown, plants of a good size will be available for planting on land now under early Potatoes. I may name a few trustworthy varieties: Sutton's Late Queen, Bouquet, Veitch's Model, Dickson's May, and June King. The seed-beds should occupy a cool site, and, by preference, between dwarf vegetables; the seedlings being then robust, and not liable to be attacked by aphides.

Hints on work in general.—The destruction of weeds will now require close attention; also the earthing-up of advancing crops, such as Potatoes, Peas, Cabbage, and Cauliflowers. In showery weather, young plants raised in pits and frames should be planted out if sufficiently hardened off, and sowings made to cover any deficiencies which may have occurred in earlier sowing. A sowing of Sweet Basil, pot Marjoram, Chervil, and Thyme, may now be made on a south border. The flowering-stalks of Seakale and Rhubarb should be removed early, as they impoverish the plants if not removed betimes.

FRUITS UNDER GLASS.

By J. ROBERTS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Pine-apples.—The fruiting-house will now contain probably plants with fruits at various stages of ripening, which, when they show signs of colouring, must be afforded but little water at the roots. A drier atmosphere in the house will conduce to richness of colour and good flavour. Fruits that are still far from being ripe may be assisted with liquid-manure. During the later stages the plants should not be syringed overhead, as to do so tends to increase the size of the crowns, which detracts from the appearance of the fruit. As the temperature during this stage should range between 75° and 95°, aridity of the atmosphere must be prevented by frequently damping the paths and walls, and syringing the beds and lower leaves of the plants.

Succession-plants.—A portion of the stock of the strongest and best-rooted Cayenne variety may now be kept rather drier at the roots for three or four weeks, in order to throw them into fruit, and afford a winter supply. Any other kinds that have outgrown their pots, and may be likely to supply spring-fruit, should be shifted into fruiting-pots at short intervals of time, so as to prevent premature fruiting, and to have the plants established before the winter sets in. The bulk of the succession-Pines should now be in good growth, and the aim of the gardener should be to keep them dwarf and sturdy. If necessary, the whole stock of these plants should be lifted, and re-plunged at wider distances apart, rather than allow them to remain overcrowded. Let air be freely admitted in fine weather, and inure established plants to stand the brightest sunshine unshaded. Suckers should be repotted according to their requirements, without reference to any general potting seasons. Let a steady bottom-heat of 80° to 85° be kept up, and a night temperature of 70° to 75°, and 80° to 85° by day.

Melons.—Under suitable conditions the early crop will now be ripening, calling for much attention being paid to the aerial humidity of the house, the use of the syringe being discontinued, and less liberal supplies of water afforded at the root; but

the latter should not be carried to extreme dryness, as to destroy the foliage of Melons ripened under extremely dry conditions of the soil, are sure to be poor in flavour. In order to have perfect fruits the foliage and the root-action should be as fresh and vigorous during the ripening period as when setting their fruit. However healthy the plants may be when cleared of their crop of fruits, it is not wise to take a second crop from the same plants, this seldom being as satisfactory as that from young plants.

Succession Melon Houses.—The plants need daily attention in stopping the laterals and fertilising the female flowers. The extra feeding of the plants should begin as soon as the fruits are of the size of a hen's egg, and be continued till they are full grown. Let a temperature of 70° at night and 75° by day be maintained by fire-heat, and allow a rise of 10° with sun-heat. The house should be ventilated early in the day in order to avoid the condensation of moisture on the fruits, and the plants lightly syringed twice daily in bright weather. Should black aphid be troublesome, fumigate the house lightly on two or three successive evenings when the leaves of the plants are dry. The present is a suitable time for starting Melon-plants in hot-bed frames standing on a good bed of prepared fermenting stable-manure and tree-leaves, capable of affording a steady bottom and top heat of 70° to 80°. The hardier varieties, such as Read's Scarlet Flesh, Hero of Lockinge, and Blenheim Orange, are best for frame culture. After the bed is formed and the bottom-heat has subsided to 85°, place half a barrowful of soil under each light, bringing the apex to within 1 foot of the glass, and on this place two Melon-plants, one to fill up the back and one for the front of the frame. Plant firmly, and stop the stem at the third leaf, in order to induce a break of two main growths, which should be trained unstopped until they reach the four corners of the frame. Afford shade during hot sunshine, and protect the frames at night until the plants are established.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener to F. A. BEVAN, Esq., Trent Park, New Barnet.

The Raspberry.—The canes have made rapid growth during the past ten days, and are well furnished with breaks; and the flower-scapes are developing. I am glad to note the absence of the larvæ of Otiorhynchus picipes, the clay-coloured weevil, which sometimes works a great deal of mischief in the Raspberry plantations by gnawing through the young shoots. It will be found that numerous suckers are pushing through the ground around the stools, and it was formerly a very general practice to leave these untouched until the crop of fruit had been gathered, when the cutting away of the old and the thinning of the current year's canes was performed at one and the same time. Now the practice is to select at the present time five or six of the most promising of these suckers in close proximity to the stools, and to pull up all others; and to suppress rigorously all that show themselves later, with the result that the stools are much strengthened, and the fruits coming on the lower parts of the canes are more thoroughly ripened than when these were smothered with growths. If the destruction of the suckers is performed forthwith, it may be readily done by the hand alone. Raspberries are gross feeders, and if liquid-manure cannot be spared for them, a rich mulch of farmyard-manure may be applied instead, or the one may supplement the other, or a dressing of chemical manure containing a fair percentage of potash may be employed. If growth generally is weak, another application of chemical manure may be made, subsequent to the setting of the fruits, and if possible while rain is falling.

The Blackberry being a plant of rampant growth, seldom requires a manurial dressing at this season, unless very weak. It is better to defer it till the fruits are swelling, when its effects are decidedly beneficial. With regard to thinning the new shoots springing from the stools, no more should be reserved than there is space for, otherwise the trellis will soon become inconveniently crowded. Trellises of iron-wire should be used to support the American Blackberries, and should be 5 to 6 feet high, and placed at a distance of not less than 6 feet apart, if more than one row is grown. Blackberry plants may be trained to poles, but their management is then rather troublesome.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	MAY 23	{ Kew Guild Dinner at Holborn Restaurant, at 7.30 P.M. Paris Exhibition (temporary show).
WEDNESDAY,	MAY 23	{ Royal Horticultural Society's Show (and National Tulip) in the Temple Gardens, London (three days). Devon County Agricultural Society's Show, at Barnstable (three days).
THURSDAY,	MAY 24	{ Linnean Society (Anniversary Meeting).
FRIDAY,	MAY 25	{ International Congress of Horticulture, at Paris Exhibition (two days).

SALES.

TUESDAY, MAY 23.—Imported and Established Orchids, at Frotheroe & Morris' Rooms.

WEDNESDAY, MAY 23.—Gladolus, Begonias, Carnations, Japanese Lilies, Palms, Ferns, &c., at Frotheroe & Morris' Rooms.

FRIDAY, MAY 25.—Imported and Established Orchids, at Frotheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—56°3'.

ACTUAL TEMPERATURES:—

LONDON.—May 16 (6 P.M.): Max. 58°; Min. 39°, on grass 32°.

PROVINCES.—May 16 (6 P.M.): Max. 53°, Cape Clear; Min., 38°, Greenwich.

A SOCIETY with a very long name, "The Traders in Poisons and Poisonous Compounds for Technical and Trade Purposes Protection Society," whose offices are 5 and 6, Clement's Inn, Strand, has been founded—

- (1.) To promote and protect the interests of traders in poisons and poisonous compounds for technical or trade purposes.
- (2.) To take steps as the Executive Committee may consider desirable for opposing legislation which is calculated to injuriously affect such traders.
- (3.) To secure the removal of repressive and vexatious restrictions in regard to the sale of poisons and poisonous compounds to technical and trade purposes by traders other than pharmacists.
- (4.) To promote and support by all constitutional means the passage through Parliament of any Bill or Bills comprehending the above objects.
- (5.) To advise and assist members of the Society in any litigation in which the general interests of the traders in poisons and poisonous compounds for technical or trade purposes are in the opinion of the Executive Committee injuriously affected.

A petition to Parliament has been drawn up for the signature of seedsmen, nurserymen, gardeners, corndealers, ironmongers, oil and colourmen, hardwaremen, agricultural agents, farmers, and other

classes of tradesmen, and users of chemical compounds containing poisons, but only intended for technical and industrial purposes, pointing out, *inter alia*—

- (1.) The important losses to trade generally; and
- (2.) The very serious inconvenience to consumers and the public at large by the retailing of such articles being taken in toto away from the tradesmen who have been accustomed to stock such specialties, and given—as a monopoly—to pharmaceutical chemists, the large majority of whom have little acquaintance with, and, at best, small accommodation for the storage of, goods in these lines—which are frequently of a heavy or bulky nature."

Under existing circumstances the Pharmaceutical Society is compelled to take cognisance of and, so far as may be, ensure the prohibition of the sale by unauthorised persons of the poisonous substances enumerated in a certain Schedule A. Unauthorised persons are, briefly, those who are not pharmaceutical chemists or medical practitioners. Pharmacists are instructed in the nature of poisonous substances, but even they cannot sell such substances without complying with certain formalities, which no doubt are irksome, but which are needful in the public interest.

Curiously enough, while the pharmacist usually deals with fractions of a grain, or with minute quantities, the dealers in weed-killers, insecticides, and the like, handle the substances in bulk, so that one innocent-looking package of moderate size may, and frequently does, contain enough poison to kill the population of an entire town. Moreover, as we had occasion to note, "Poison" labels are not always employed.

Poisons are sold for two purposes—the one legitimate, the other illegitimate. There is no reason or desire to interfere with the former, whilst no precaution can be too great to ensure the prevention of the other. The society, whose name is too long to repeat, is therefore well judged in adding a clause to their prospectus asserting their right to sell these compounds, however poisonous they be—"Providing always that such sale and retailing be subject to proper and well-defined restrictions, and be limited to commodities 'in original sealed packages as received from the manufacturers or wholesale dealers.'"

Those "proper and well-defined restrictions" should not be one whit less drastic than those already imposed upon the chemists and druggists. It is not the interest of this trader or of that one which has to be considered, but the safety of the public. A small portion only, we will hope, of that public is designedly wicked; a large portion is, as CARLYLE told us—well, we will say, not fit to be entrusted with the handling or administration of poisons, unless under supervision.

We understand that Mr. G. H. RICHARDS, of 128, Southwark Street, London, S.E., has been mainly instrumental in the formation of the Society, and he is one of its staunchest supporters.

WHETHER we take the Crab from a culinary point of view, regarding its fruit as delicious

in the form of jelly as regards the common Crab of this country, the excessive cropping, yellow-fruited variety, or from the landscape gardeners' point of view, we see too few Crabs everywhere in gardens and hedgerows, and even in wood it is not common. We were reminded of the fact that many beautiful varieties exist in our nurseries, if they are all

too few in our gardens, by observing the interest created among visitors to the Royal Horticultural Society's meeting on May 8, by the exhibit of Messrs. CHEAL & SONS of Crawley, and to the collections from Messrs. W. PAUL & SON at a previous meeting. To many of the visitors these handsome Crabs, of Chinese, Japanese, Siberian, and hybrid origin, were a revelation, taking the fancy of the many quite as much as the Orchids and the Narcissus. There is not another genus of trees which, planted with good taste and judgment, and above all, not sparsely, brighten a garden in the late spring more effectively than do the Pyruses; and then in the autumn, should spring frosts have spared them, the many-coloured fruits hanging in ropes and bunches, have an almost equally pleasing effect in the autumn. The genus *Pyrus* includes both our edible Pears, *Pyrus communis sativa*, a variety without spines, and of which there are many varieties in our gardens, which is merely alluded to here; and *Pyrus Malus*, including the Apples.

The chief sections into which *Pyrus Malus* is divided are *P. M. acerba*, the sour-fruited or common Crab, yielding many sub-varieties, of which some are cultivated for the manufacture of cider; *P. M. prunifolia*, Siberian Crab, a very beautiful tree when covered with its usually very abundant pure white bloom. The fruit is yellowish, sub-globose, and not pleasant eating, although Mr. KNIGHT raised some of the finest varieties from cultivated varieties impregnated with the pollen of this species, and the progeny was of remarkable hardness, with early and well-flavoured fruits.

Pyrus Malus baccata, the berry-bearing Crab, a native of Siberia and other northern Asiatic lands, is probably a sub-variety of the preceding, differing in not having a persistent calyx. This has numerous varieties, with small, long-stalked fruits, in great variety of colours; the fruit excellent in compotes, and the trees very ornamental in flower or fruit. Others of the section of *Pyrus Malus* are *P. M. coronaria*, a tree growing from 15 to 18 feet in height, with flowers odorous of Violets, and turning of a purple colour before they fall; a native of America, where cider is made from its fruit. It was introduced in 1724, and is common in our nurseries, and at some places, notably at Pepper Harrow, Godalming, it grows semi-wild in the woods. The tree blossoms late in May, hence its desirability in the garden. Then there is *P. M. spectabilis*, or Chinese Crab, with some double, pale rose-coloured flowers in sessile umbels, the unexpanded flower-buds being of a deep red tint. It flowers early when few other trees are in bloom. Its fruits are of the size of a Cherry, angular, and of a yellow colour when ripe, but flavourless unless when bletted like a Medlar, which in flavour it then resembles. A capital tree for the pleasure grounds.

We may mention here, under the names as shown by Messrs. CHEAL, at the Drill Hall, *Pyrus Malus atrosanguinea* (probably of the baccate section), with very numerous small crimson flowers; a variety of *P. M. prunifolia* var. *coccinea*; *P. M. Kaido*, a variety probably of *P. M. spectabilis*, with numerous white and pink flowers; and *P. M. Niedwitziana*, a variety with reddish-crimson flowers, and purplish-green foliage; wood also purple, as also the bark. The Dartmouth Crab, a rather modern addition to ornamental Crabs, ought not to be omitted, though it did not appear in this collection.



GROUP OF HARDY BAMBOOS, ARRANGED BY MESSRS. VEITCH & SONS.

ROYAL HORTICULTURAL SOCIETY: TEMPLE FLOWER SHOW, MAY 23, 24, and 25.—The thirteenth Great Flower Show of this Society, held annually in the Inner Temple Gardens, Thames Embankment, will open on Wednesday next at 12.30. Judging from the large number of entries received, the Show promises to be quite up to its usual standard of excellence. The following well-known amateurs are among the names of intending exhibitors:—

DUKE OF NORTHUMBERLAND	... Nepenthes.
LORD GERARD	... Carnations.
LORD WINTHAM, K.C.B.	... Fruit and Vegetables.
SIR TREVOR LAWRENCE, Bart.	... Orchids.
SIR J. PIGOTT, Bart.	... Crotons and Palms.
SIR J. PEASE, Bart.	... Fruit and Vegetables.
SIR F. WIGAN, Bart.	... Orchids.
ALEX. HENDERSON, M.P.	... Fruit and Vegetables.
HENRY LITTLE	... Orchids.
R. J. MEASURES	... Insectivorous Plants.
LUDWIG MOND	... Orchids.
LEOPOLD DE ROTHSCHILD	... Water-Lilies in Tubs, and Fruit-trees in Pots.

LINNEAN SOCIETY.—The Presidency of the Linnean Society is vacated by the resignation of Dr. GÜNTHER. The Council recommend that Prof. S. H. VINES, the Professor of Botany at Oxford, be elected in his place. The election takes place on the 24th inst., at 3 P.M., in the rooms of the Society, Burlington House, Piccadilly. The election of a Council and Officers for the ensuing year, the award of the Society's gold medal, the reception of the Presidential address, and other business will be transacted.

HORTICULTURAL CLUB.—The usual monthly dinner and *conversazione* took place on Tuesday, May 8, but two events hindered the attendance from being a large one: the funeral of the late Mr. T. B. HAYWOOD, and the annual dinner of the Royal Gardeners' Orphan Fund. The meeting, however, was a very interesting one, as an address was given by Mr. DE GRAAFF, of Leiden, on "Java," in which were very vivid descriptions of both the flora and fauna of that tropical island. Many questions were asked concerning the subjects brought forward, and much interest was excited by the wonderful account of the Bamboos, which grew to a height of 150 feet. The Chairman, Sir J. T. D. LLEWELYN, Bart., M.P., proposed a vote of thanks to Mr. DE GRAAFF, which was cordially agreed to by the members present.

THE NATIONAL TULIP SOCIETY, we are informed, will hold its Southern exhibition on the 23rd inst., in connection with the Temple Show of the Royal Horticultural Society; and then its Northern exhibition on June 2, at Middleton, near Manchester.

THE ROYAL GARDENS, KEW.—Visitors to the Kew Guild dinner, or to the Temple Show next week, may find much to interest them at Kew. A greater variety than we noticed last week may be seen now among the hardy species of flowering shrubs and trees. Many of these—*Pyrus*, *Spiræas*, &c.—are close to some of the houses, but this should not prevent the visitor from walking the distance to the Wild-garden and the Rhododendron Dell, or he will miss much of the present beauty of Kew. Each day the show of Rhododendron blooms becomes more liberal, and many of the earlier varieties have been flowering for some time past, amongst which is *R. cinnabarinum*, a very attractive variety indeed. In the greenhouse, known also as No. 4, was a few days ago a great variety of bloom. The Senecio "Lady Theselton Dyer" was then in capital condition. A small group of plants in full bloom illustrated a remarkable absence of variation. Each of them has similar habit of growth. They form compact little bushes, and the flowers are produced on a level considerably above the foliage. This *S. Heritieri* hybrid, produced by crossing the species with a garden *Cineraria*, is quite distinct, in foliage and other respects, from *S. cruentus* hybrids or varieties, and as a garden-plant is equally effective. The

flowers are white with blue margins, and the stock may be kept from year to year by rooting cuttings. The species *S. Heritieri* was also in bloom; and *S. populæfolius*, a very variable species in respect to colour, with large Poplar-like leaves, exceedingly white on the under-surface. The flowers were white, purple, or blue. Other plants in flower were *Itea virginica*, a well-known plant that may be forced well, but is not often used for this purpose; *Collinsia bicolor*, *Rhododendron (Azalea) sinensis*, various *Lilacs*, *Nemesia strumosa*, which has made quite an indifferent display; *Streptosolen Jamesoni*, *Roses*, *Hippeastrums*, which have been in evidence in this house since the middle of February at least; *Begonias*, the white-flowered *Wistaria*, *Pelargoniums*, *Arthropodium cirratum*, and a grand batch of *Schizanthus pinnatifidus*, &c. These *Schizanthus* are blooming finely; it is seldom they may be seen better, and they certainly make us long to see them more frequently in our greenhouses in spring, and our flower-beds in summer. In the "T-range" also there will be many objects worth inspection among the *Begonias*, *Heaths*, *Orchids*, and fine-foliage plants. The *Victoria Regia Lily* has become established, and is now developing several leaves; but for the present the *Nymphaea*-house is the more interesting. The succulent-house, ferneries, Aroid-house, Palm, temperate, and alpine-houses, have each of them their usual attractions, for excepting the two latter, these do not claim to afford the changes of scene that is a feature of the others. Of the delights of the rockery we wrote last week.

CHANGE OF SEED.—The value of this proceeding is almost universally admitted by agriculturists; occasionally, however, it appears to be overlooked where one would least expect to find the omission. For instance, the British Vice-Consul at Kansas City reports that an opening would appear to exist in the United States for the sale of British seeds, with special reference to Oats. In the course of an agricultural inspection at Kansas last year, a field of Oats was examined, part of which had been sown from seed imported from Scotland, and the balance from local seed; the yield from the Scottish seed was 55 bushels to the acre, and that from the local sowing only 28 bushels. Comment is, of course, needless; it would be interesting, however, to have the weights of the two bushels.

TREES AND SHRUBS OF YUNNAN AND SUTCHUEN.—M. D. BOIS has reprinted from the *Journal of the National Horticultural Society, France*, a summary from the labours of the late M. FRANCHET. That botanist, whose loss we deeply regret, studied the material sent home by various missionaries, such as Fathers DELAVAY, FARGES, SOULIE, and BODINIER. Among these plants are many likely to be useful in gardens, even as hardy plants. Illustrations are given in some cases, together with references to the works in which FRANCHET described the plants. The Rhododendrons are extremely numerous, and there is a considerable number of Conifers. No doubt before long some of these new comers will make their appearance in English gardens.

CEANOTHUS RIGIDUS.—A box of flowering branches of this beautiful shrub, sent by JOSEPH BROOME, Esq., Sunny Hill, Llandudno, well displays its beauty and usefulness as the showiest wall-plant flowering early in the year in situations suitable to it. Mr. BROOME states that it covered an area of wall measuring 18 feet in width and 11 feet in height, and contained more than one thousand branches densely set with bright blue flowers.

CANADIAN AND CAPE FRUIT SALES.—A few weeks since, in noting the arrival and disposal of sundry cargoes of fruit from the Cape, we observed that most of the fruit was sold privately at Covent Garden, not by public auction; some Peaches were sold at public auction, and although

first-class fruit, realised very low prices. The result does not seem to recommend the public auction sales. Our attention has been called to a brief comment upon this in the latest issue of the *Canadian Horticulturist*, which runs to this effect: "Of course these fruits from South Africa will not compete with ours, because their summer is our winter; but if they can succeed and cross the tropics, why can we not succeed with less distance and cooler air? There is no doubt a great deal of truth in the point made in the *Gardeners' Chronicle* about the private sale of the goods; ours are always sold by public auction, and this may count against our best success, especially while our goods are looked upon as novelties. But the world grows older day by day, and soon the fruits of Canada will be asked for on the market just as to-day are the Apples of Tasmania. Some two years since attention was called in the Canadian Parliament to the disposal of fruit from Canada in the home market, and the difficulties attending the same commented upon by those giving evidence before the Parliamentary Committee at Ottawa—perhaps more market centres advertised in journals with large circulation, salesmen might be coerced into making money out of Canadian consignments!"

MR. J. F. HUDSON, the Secretary of the Dahlia Society, has been appointed mathematical lecturer at University College, Bristol. Mr. Hudson has, for the past three years, been assistant lecturer at Jesus College, Oxford, and assistant demonstrator of physics in the Oxford University laboratory. Mr. Hudson is a scholar of Jesus College, Oxford; he took first in "Mods." in 1893, and first in "Greats" in 1895.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held in the Lecture Hall of the Institution on Monday, May 21, 1900, when a paper will be read by Mr. E. H. BLAKE (Fellow), entitled, "Extras and Omissions in Building Contracts." The chair will be taken at 8 o'clock. The annual general meeting of the Institution, to receive the report of the Council and the announcement of the result of the election of officers for the ensuing year, will be held in the Lecture Hall on Monday, May 28, 1900, at 3 o'clock. The prizes awarded to successful candidates, in connection with the recent preliminary and professional examinations, will be presented by the President at the annual general meeting.

THE CRUICKSHANK BOTANIC GARDENS, ABERDEEN.—The work of laying out these gardens, by Dr. JAMES W. H. TRAIL, curator of the gardens, is making good progress. Those of the public who expect that the gardens will be laid out after the ordinary system of landscape gardening, will be somewhat surprised to find that definite botanical instruction is the main objective, and not colour and effect. Dr. TRAIL, however, may be trusted to make the gardens as interesting to the public as is possible.

WOLVERHAMPTON CHRYSANTHEMUM SOCIETY.—At a general meeting of the Committee of the above Society, it has been decided to abandon the usual annual show for this year. Owing to the very heavy calls upon the subscribers in consequence of the present war, and other calamities of a national character, it is feared that it would not receive the support which has been accorded to it in the past. It may be mentioned that another reason for the decision of the Committee is the poor support which the Society received last year. It is the intention of the Committee, however, to hold the show next year, when it is hoped prospects will be brighter in every way, and that the public will combine to make the show a success. J. Wheeler, Hon. Secretary.

MAGNOLIA STELLATA AS A PLANT FOR FORCING.—A writer in *Der Handels-Gärtner* (Leipzig), states that this beautiful white-flowered species (figured in *Gard. Chron.*, vol. xvii., p. 521),

is an excellent forcer, succeeding much better than other deciduous species such as Soulangiana, &c. A plant well furnished with flower-buds, and from 1½ to 2 feet in height, may be taken from the open ground and forthwith be placed in the forcing-house.

CAPE FRUIT.—The *Tantallon Castle* has brought 326 boxes of fruit, i.e., 307 boxes of Grapes, 15 of Pears, and 4 of Quinces. The Grapes, with the exception of the Hannepoort, are in good condition, and sold readily at 20s. to 25s. per box; the Hannepoort were wet and poor, obtaining only normal prices. The Pears were fine, good fruit, and quickly sold at good prices—average, 4d. per Pear. Quinces were a private consignment. It may now be noted that the season of 1900 closed with the last consignment. The importations have been 17,336 packages, against 10,780 last season. They may be tabulated as follows:—

Imports.	1900	1899
Grapes boxes	11,648	7,000
Plums "	8,717	416
Peaches "	1,063	2,169
Pears "	529	1,029
Nectarines "	256	122
Apples "	109	1
Figs... .. "	18	3
Quinces "	6	36

On the whole, merchants here consider the past season has been a fairly satisfactory one. Hannepoort Grapes have generally turned out poor, and the merchants expect a heavy loss on the growth. The general opinion is that this kind of Grape will not carry sufficiently well to make a profit. Plums sold well, but vendors say that the expenses of proper packing and carrying this fruit leaves little profit. Peaches, on the whole, have done well, and, unfortunately for growers, some of the crop entirely failed this season. Pears have sold well all through, but they were not quite so fine as last year. Nectarines have done very well, all being good and fine fruit. Apples did not sell well; this class of fruit does not yet appear to be understood at the Cape. The growth must considerably improve before a trade can be done. Figs and Quinces are practically only samples. It should not be forgotten that the Union Castle Steamship Company have materially assisted in the creation of the Cape fruit trade, and we are much indebted to them for information through the season.

BOTANICAL LABORATORIES, GLASGOW UNIVERSITY.—In the *Builder* of last week is an illustration of the new buildings devoted to botanical study in Glasgow. We extract the following particulars from our contemporary. The above buildings are situated in the open grounds to the west of the main University buildings, and facing University Avenue on the north, and the athletic grounds on the south. The main entrance is from University Avenue, and gives access to a central hall, lighted by a cupola over the staircase, and rising 19 feet to the ceiling, round which are grouped the lecture-theatre, museum, herbarium, and professor's room. The lecture-theatre is open to the roof, and finished with a plaster ceiling. It faces south, and has a bay window for plants, with a conservatory on the roof over. It measures 54 ft. by 36 ft., and is seated for 213 students. The museum is similarly roofed, measuring 52 ft. by 35 ft., and has two galleries. The herbarium measures 40 ft. by 35 ft., and rises the full height of the hall, with one gallery; the entresol space over the professor's room being used for assistants' private rooms. The first floor, over the herbarium and central hall, is occupied by the elementary laboratory (65 ft. by 35 ft.), with working accommodation for 100 students, and over the professor's room, by the advanced laboratory (27 ft. by 35 ft.). These laboratories are open to the roof with ceilings in plaster, and lighted by roof-lights

from the north. The work is intended to combine the styles of the old Scotch gateway adjoining, and the University buildings proper. The estimated cost of the buildings is about £18,000. The building is the joint design of Mr. J. OLDRID SCOTT (London), and Mr. J. J. BURNET (Glasgow).

"CASSELL'S POCKET GARDENER."—This is described as a "popular pennyworth of useful horticultural information for amateurs, cottagers, and all who practice gardening for pleasure, prizes, or profit." It contains upwards of thirty illustrations, and is edited by Mr. W. P. WRIGHT. It is, indeed, a wonderfully cheap handbook, full of hints that are always seasonable, and also of up-to-date information. The "Patriotic Flower-bed," described and illustrated on the opening page, might be more correct, for, as usual with popular representations, the white lines are not in the right proportions. This will, however, trouble only the few, while the many will be pleased with the general convenience and usefulness of the little handbook. (Publishers: CASSELL & Co.).

SWEET PEA BICENTENARY CELEBRATION.—On Friday, the 11th inst., the executive committee met at the Horticultural Club, with Mr. GEORGE GORDON, V.M.H., in the chair, when it was reported by the honorary secretary, Mr. R. DEAN, V.M.H., that the whole of the North Nave of the Crystal Palace would be devoted to the forthcoming exhibition, and a suitable room be provided for the conference proceedings. The trade displays will form a border around the competitive exhibits, and these latter will be relieved by tables of plants. One great improvement promised is that the tables will be draped with green baize, and consequently there will be no unsightly array of boxes and other impediments below the flowers. In connection with the Conference, arrangements were made for papers to be read as follows: "The History of the Sweet Peas," by Mr. S. P. DICKS; "The Evolution and Improvement of the Sweet Pea," by Messrs. J. ECKFORD and C. H. CURTIS; "Classification of Sweet Peas," by Mr. W. P. WRIGHT; "Sweet Peas in America," by Rev. W. T. HUTCHINS; and "Some New Points in the Cultivation and Decorative Use of the Sweet Pea," by Mr. H. DUNKIN. Fifteen judges, including three ladies, were selected for the competitive exhibits, and it was decided the Exhibition Committee should judge the trade exhibits. Applications for space must be made to Mr. R. DEAN, Banelagh Road, Ealing, as the entire arrangements for the show are in the hands of the committee. Intending exhibitors and others will be interested to learn that a luncheon will be provided at the Crystal Palace on July 20, tickets 5s. each, including wine; breakfast will also be provided earlier in the day at 1s. 6d. per head.

YORKSHIRE NATURALISTS' UNION.—We are apprised by circular that a meeting of members of this body of naturalists and their friends, will take place at Hornsea, on Saturday, May 19, for the investigation of Hornsea Mere and neighbourhood, and the coast line thence northwards to Atwick and Shipsea. The Hon. Secretaries are W. DENISON ROEBUCK, F.L.S., Hyde Park Road, Leeds; and EDWIN HAWKESWORTH, Esq., Hunslet, Leeds.

PUBLICATIONS RECEIVED.—*Bulletin of Miscellaneous Information, Botanical Department, Trinidad*, No. 22, contains short papers on "A Day's Rain," "Cacao Disease," "Growth of Rubber Trees," "Alfalfa and Lucerne," "Sugar-cane Culture," and "Tobacco."—*From the County Councils of Cumberland, Durham, and Northumberland, Eighth Annual Report on Experiments with Crops and Stock during the Season 1899*: By William Somerville.—*The Practical Farmer: A Vade-Mecum of Grasses, Roots and Forage Crops, Farm Pests, Weeds, &c., and Agricultural Plants generally*. "Beautifully illustrated." James Carter & Co., High Holborn, London.—*Garden Notes for the Colonies and Abroad*. James Carter & Co., High Holborn, London. A very useful epitome of some of the more important plants as regards their fitness for cultivation in different tropical and sub-tropical countries.—*Guernsey Growers' Association's Year Book, 1899-1900*. Edited by Wm. H. Wheadon, Assistant-Secretary. Containing the rules of the Guernsey Growers Association; Fruit and Flower Exports; Tables of Freights,

&c. Articles dealing directly with the growing and exporting of produce, and other information. May be had from the Secretary, St. Julian's Pier, Guernsey.—*Die Schönsten Stauden für die Schnittblumen und Gartenkultur*. Lieferung, 2, Berlin, W.; 35, Verlag, von Gustav Schmidt.—We have before us, from the Ontario Department of Agriculture, Toronto, a pamphlet (illustrated) on *The San Jose and other Scale Insects*, by Wm. Lochhead; and another paper (also fully illustrated) on *Some Common Ontario Weeds*, by Prof. F. C. Harrison.—*Proceedings of the Twenty-sixth Session of the American Pomological Society, held in Philadelphia, Pa., September 7, 8, 1899*; compiled by the Secretary. This contains some short but interesting miscellaneous papers, fruit reports from various districts, and catalogue of fruits recommended for cultivation in the various sections of the United States and the British provinces. For title-page a plate is given from a photograph of the members of the Society.—*Bulletin of Miscellaneous Information, Royal Gardens, Kew, Appendix II., 1900*. Contents: New Garden Plants of the Year 1899.—*Journal of the South-Eastern Agricultural College, Wye, Kent*, No. 9, April, 1900, contains information relating to Experiments upon Hops, 1899, by A. D. H.; The Determination of Hop Resins, by H. H. C.; Red Mould in Hops, W. H. Hammond; Report on Insect Pests in 1899, F. V. F.; Moss in Pastures, A. D. H.; Notes on Lucerne and Sainfoin Experiments, J. P.; and other agricultural matters.—*Mémoires de l'Herbier Boissier*, No. 10; Beiträge zur Kenntnis der Afrikanischen Flora (Neue Folge), Herausgegeben, von H. Schinz (Zürich); I. Zur Kenntnis der Pflanzenwelt der Delagoa Bay, von H. Schinz und Henri Junod; II. Diagnoses Plantarum Africanarum Novarum.—*Aperçu Historique sur la Société Nationale d'Horticulture de France (1827 à 1899)*, par M. D. Bois (Paris: Imprimerie de la Cour d'Appel, 1, Rue Cassette).—*L'Actinostemma paniculatum, Cucurbitaceae Grimpante Ornementale Nouvelle*, &c., par M. D. Bois.—*Cas de Pistillodie dans un Begonia tubéreux à fleurs cristées et dans le Begonia semperflorens "Algerie"*, par M. D. Bois.—*Boletim da Sociedade Brotariana*, Red., J. A. Henriques, XVI., fasc. 3, 4, 1899 (Coimbra).—*South Haven Report for 1899*, by L. B. Taft and S. H. Fulton, Michigan State Agricultural College Experiment Station, Horticultural Department, Bulletin 177, December, 1899.—*The Gardeners' Magazine (Agricultural and Horticultural Nursery)*, 8, Gopalnagar Road, Allipore, Calcutta, April 15, contains Items of News and Notes, Gardening Operations for April and May, Country Vegetable Seeds for Sowing on or before the Rainy Season, and Cyclopaedia of Indian Plants, Trees, Shrubs, Creepers, &c.—*Journal de la Société d'Horticulture du Japon*, No. 92, January. Contents: Fujino, Les espèces de cerisiers à fleurs au parc d'Onono; Claude Trébignaud, Choix et Conservations des Greffons (translated); Komukai, Description des plantes cultivées; Yoshida, Plantes Japonaises à l'étranger et Komukai, Jardin Public d'Akita, No. 93, February. Contents: M.M. Naganuma, Limite de l'effet de l'hybridation sur les semis; Komukai, Culture du Ipomoea hederacea; Yoshida, Plantes Japonaises à l'étranger. No. 94, March. M.M. Komukai, Culture du Ipomoea hederacea (suite); Morita, Culture de certaines espèces de lis spéciales pour l'exportation; Tamura, Variété du Citrus aurantium dite Tengumikan; Ozawa, Création du paysage du parc de Kotohiki dans le Département de Kagawa.

TREES AND SHRUBS.

ABIES BREVIFOLIA.

UNDER this name, Mr. W. A. Brotherton describes in the number of *American Gardening* for March 24, a Spruce (*Picea*) which he describes as the smallest and slowest-growing of all the American Spruces. It is very handsome and very variable, differing however in all its forms from *Picea alba* or *Picea nigra*. It is specially useful where trees of larger dimensions would be undesirable.

THE WEATHER IN WEST HERTS.

THE usual cold wave in May, lasting six days (9th to 14th), has been very marked this year. As the French weather proverb has it, "St. Mamertius, St. Pancras, and St. Gervais (11th, 12th, and 13th), do not pass without a frost;" or again, "Who shears his sheep before St. Gervatius Day, loves more his wool than his sheep." Previous to the 9th, the weather had been very warm, but since then all the days and nights have been more or less cold. For two days the shade temperature never rose above 49°, and on two nights the exposed thermometer showed from 2° to 6° degrees of frost. Fortunately there was a light wind blowing on both nights, or the frosts would have been much more severe, and considerable damage would have been done here to the young foliage of Roses and other plants. During the six days in question, the wind came almost exclusively from some point

between north and east. The ground-temperatures fell during the past week, and are now about 1° colder at 2 feet deep, and at 1 foot deep about 3° colder than their respective averages for the middle of May. Rain is still greatly wanted, no rain worth mentioning having fallen since the beginning of April. Not a drop of rain-water has come through either of my percolation gauges for over a fortnight. *E. M., Berkhamsted, May 15.*

HOME CORRESPONDENCE.

ROYAL HORTICULTURAL SOCIETY.—[We continue to receive a large number of letters on this subject, and have given a selection from them. In so doing we have endeavoured to make them as

posed substitute for it, the approximate cost of reclamation, &c., should be made known. A protest is raised against the retirement of Mr. Sutton; and a reasoned appeal for the promotion of the hall scheme. It is pointed out that while much has been written in these columns, and in those of our contemporaries, in favour of the hall scheme, little or nothing has been said as to the principle of the "New Chiswick" proposal, but only a discussion of a subordinate detail, the suitability or otherwise of the Limpsfield site. The writer then proceeds to point out the defects of the Temple and Crystal Palace Shows, and to the work that might be done at Chiswick; but neither our space nor our readers' patience will permit a further summary of our correspondent's views. *ED.*]

THE NEW CHISWICK.—To my mind, before any step is taken in the direction of acquiring a new site, the Fellows should be fully acquainted with

Even Chiswick, in less than eight years from its foundation, landed the Society in a debt of over £20,000. *James L. Wood, Wood-Green.*

—The question of new quarters as a scientific station and horticultural trial-ground is a very important one, and will require serious and careful consideration. I am not aware, however, that the new district opened out by the Great Central Railway, north-west of London, has ever been under consideration. I consider the district between Harrow and Rickmansworth contains some exceedingly valuable and suitable land, which would not be very expensive to buy at the present time, compared to any other locality within the same distance of London. It is also well served by railways, being on the branch of the Metropolitan, also touched by the Great Central and Great Western, and what is most important, it is likely to grow in value for many years to come. I think the Royal Horticultural Society would do well to purchase a good area near to a railway station in this district, communications to which would be exceedingly good, and it would be far more central than any place that has at present been mentioned. I hope this communication will come before the notice of those in authority, and will receive the consideration this important subject deserves. *John Harrison, Leicester.*

THE CHISWICK TRIALS.—Cannot those who criticise the Chiswick vegetable and other trials, especially in relation to Peas, perceive that their complaints as to the imperfect nature of these trials emphasise the great need there is for a much larger area for the conduct of these trials, that they may be far more complete than they have been? That many of these trials have not been welcome to some of the seed trade is well known. It seems to be assumed that the object of the trials is to indicate which are the best varieties for universal culture. That is rather too absurd. Their primary object is to enable the respective committees to determine how far this or that sent for their notice may or may not be new and distinct, and also an improvement on existing varieties. Sometimes that proves to be the former; more frequently it is found that the novelty is only in name. Is it to be assumed that the trials in that respect, their results being widely published, are of no service to horticulture? What nonsense is it to say that private seedmen's trials render these public and impartial trials useless! A private trial is conducted in the interests of the seedsmen, and everything is carefully kept under number. What is good is his; what is not good belongs to someone else. Surely Mr. Deal is joking when he suggests that the Royal Horticultural Society should conduct a vegetable trial on his firm's seed grounds at Boston. Would he like to send of his firm's seed stocks for trial to some other seedman's grounds? Such suggestion furnished help to the discussion of a grave and difficult subject. Let us have the Royal Horticultural Society's trials by all means, but under more favourable conditions, and in a wider area than Chiswick affords. At Reading, at Boston, at Dedham, at Eynsford, and elsewhere, trade trials have ample room, plenty of light, and pure air, and good holding soil. Would any seed firm exchange their trial grounds for Chiswick? Certainly not; but why discuss this grand subject on such narrow grounds! The council of the Royal Horticultural Society wish to have a suitable trial-ground for all descriptions of plants, but it wants something more. It wishes to establish a first rate National Horticultural Garden, such as Britons may show with pride to foreigners, and not with humiliation as now, for Chiswick is as a National Horticultural Garden, a poor thing. It does surprise me to find a project that should command the admiration of every horticulturist, discussed on such low, paltry grounds, as to whether Chiswick trials are satisfactory or not. A great effort is about to be made to establish a first-class National Horticultural Garden. Who will help, and who will hinder? *A.*

THE ROYAL HORTICULTURAL SOCIETY.—Baron Schroder's letter on p. 298 has appeared at a most opportune moment, and a large number of Fellows who have the true interests of the Society at heart, will unite in the hope that your correspondent's remarks will receive the consideration their importance demand. He strongly advocates that the Society should "try to acquire a hall of its own in a suitable position, before they spend any



FIG. 100.—PARIS EXHIBITION: FRUIT TREES ON THE BANKS OF THE SEINE BY THE ALEXANDER BRIDGE. IN THE BACKGROUND THE PALAIS OF THE CHAMPS ELYSÉES. (SEE P. 318).

representative as possible of different opinions. One gentleman, however, favours us with a letter of twenty-eight quarto pages on the subject, but we have no intention of laying such a cyclopædia before our readers, but must content ourselves with stating some of his proposals. The writer points out that the government has been very generous to the Royal Botanic Society, whose services to horticulture and botany are trifling in comparison to those rendered by the Royal Horticultural Society. He proposes the amalgamation of the two societies, and points out that London is almost the only metropolis which has not a hall for horticultural exhibitions. He points out also that in conducting the trials at Chiswick we are competing against a host of better equipped competitors. His most daring suggestion is that the government should allot a space in the Green Park for the benefit of the Royal Horticultural Society. He considers that time is required for the due consideration of the subject, particularly as the details of the proposed schemes have even yet not been made public. He is of opinion that all the details relating to the Chiswick lease, as well as all particulars of the pro-

posed substitute for it, the approximate cost of reclamation, &c., should be made known. A protest is raised against the retirement of Mr. Sutton; and a reasoned appeal for the promotion of the hall scheme. It is pointed out that while much has been written in these columns, and in those of our contemporaries, in favour of the hall scheme, little or nothing has been said as to the principle of the "New Chiswick" proposal, but only a discussion of a subordinate detail, the suitability or otherwise of the Limpsfield site. The writer then proceeds to point out the defects of the Temple and Crystal Palace Shows, and to the work that might be done at Chiswick; but neither our space nor our readers' patience will permit a further summary of our correspondent's views. *ED.*]

every detail concerning it. Limpsfield has been described as "water-logged." One expert has pronounced its soil to be unsuitable for the purpose intended; also its distance from London (over 20 miles), and from the nearest railway-station (2½ miles), are matters which should be carefully considered. Your correspondent, "O. T. F.," writes:—"Before committing the Society to so vast and risky an undertaking as this, it is not too much to ask the Council to put some tangible and well-digested scheme, with plans, &c., before all the Fellows, of what is proposed to be done before the next meeting? How much the completed scheme is likely to cost. Where the money is to come from. And, what is of more consequence than all, what does the Council propose to teach and demonstrate in the new garden?" I endorse every word of this. Such an important step as the purchase of a new site should not be taken before every Fellow has been made acquainted with all the details, and had an opportunity of expressing his opinion thereon; and the only way to do this will be to convene a special conference. The cost of forming a new garden in such a situation would be enormous.

money in buying land to replace Chiswick." The fact is, the subject has never yet been properly or fully discussed at a meeting of the Fellows; the recommendation of the Council in the last annual report was of a very general character, and it was definitely stated that an appeal was to be made to the Fellows. This appeal has never been made, and the whole matter was left in obscurity by the President's speech at the annual meeting. It does not appear that the adoption of the Report could be construed as a resolution in support of the scheme as put forward at the meeting on April 25. The Fellows were taken at a disadvantage by the assumption of a previous resolution implied in the proposition of the Council, and the whole matter ought to be discussed fully in all its bearings before any attempt is made to force upon the Fellows "the scheme" which Baron Schroder hopes, in common with many other horticulturists, "will be definitely given up." *A Northern Fellow.*

I have read with much interest the various reports which have appeared in the *Gard. Chron.* on the Limpsfield site for the proposed New Chiswick, and as I presume that before long the Fellows will be asked to decide definitely for or against this site, I shall be very much obliged if you can find room for this letter in your next issue. Whatever the merits or demerits of this site may be—and to some extent the differences of opinion are doubtless due to the fact that even heavy and wet land looks much more promising in May than it does in winter—the fact remains that it is nearly 3 miles from a railway-station, with bad approaches. Even supposing the soil were all that is claimed for it, it must be obvious that to transform a heavy arable and pasture farm into a garden where horticulture of every kind shall be carried on in a manner worthy of our National Society, would entail an enormous outlay of capital. In addition to this transformation of arable and pasture land into a garden, houses heated in the most approved manner must be built, in which plants of all kinds may be grown; also vineries, Peach and Fig-houses, &c., must be erected and afterwards maintained at an annual cost, compared with which the expense of Chiswick is insignificant. Those who favour the scheme are doubtless prepared to admit all this; but I venture to think that the Fellows generally are unwilling to see all the existing funds applied to such a purpose, together with a further sum vastly exceeding the present resources of the Society, and which can only be raised by voluntary donations. Before sanctioning so great an outlay, we ought very clearly to understand what advantages would accrue to the Fellows, also what (if any) would be the gain to horticulture generally. Unless in one garden we have all branches of horticulture carried out on a scale almost regardless of expense, what hope is there that students would be likely to choose the new Chiswick as a school for gardening, rather than avail themselves of the opportunities already afforded by a course of training at Kew, or in gardens such as Frogmore, Sandringham, Gunnersbury, Syon House, and many others; or by employment in Messrs. Rivers', and Messrs. Bunyard's, and Messrs. Pearson's nurseries, for the culture of fruit under glass, or in the open; at Messrs. Veitch's, Messrs. Sander's, Messrs. Bull's, and elsewhere, for Orchids, &c.; at Messrs. Paul's, Messrs. Turner's, Messrs. Cant's, and elsewhere, for Roses, &c.; Messrs. Kelway's for herbaceous plants, &c. The value of the Chiswick trials of vegetables has already been discussed sufficiently to show that such work is far more completely done in the trial-grounds of the large seed houses. What material advantages then can result from this vast outlay of capital, and the money required for the annual up-keep? But there is another point which the Fellows will readily grasp, and have perhaps already seen, viz., that with the establishment of a new Chiswick at the cost which the Limpsfield site must necessarily entail, all hope of a national hall of horticulture disappears, at least so far as the present generation of horticulturists is concerned. If the Society appeals to the country to finance the Limpsfield scheme, it cannot again appeal for funds to acquire a new hall and headquarters of the Society. Now that it has been shown by so many writers that Chiswick can be made to answer all the actual requirements of the Society, so far as a garden is concerned, the Council would earn the most unqualified approval and gratitude of the Fellows were they generously to forego their new Chiswick

proposals—at least until such time as it has been proved impossible to raise the money required for a horticultural hall. But the most important factor in the case is that, judging from his letter in last Saturday's *Gardeners' Chronicle*, it appears not unreasonable to hope that Baron Schroder may again be willing to lend his aid, which would at once go far to ensure the success of any well-devised scheme for acquiring a new hall. If the Baron's letter may bear this interpretation, can we sanction a scheme which would deprive the Society and horticulture generally of what is universally admitted to be the fittest way of celebrating the Centenary of the Royal Horticultural Society? The thanks of all horticulturists are due to Baron Schroder for coming forward at a time when his counsel and support was never more welcome. *Arthur W. Sutton.*

ROYAL HORTICULTURAL SOCIETY.—Allow me to add the following to my letter of April 25: If £40,000 be required to build a suitable Hall for Exhibitions, surely the money could be raised on mortgage debentures? In that case £1,400 a year, which would be the interest on that sum at 3½ per cent., could be saved by giving up Chiswick. There would also be saved the rent of the Drill Hall (£120), and probably a considerable part of the costs of the Temple and Crystal Palace shows. Of course, there must not be a second Chiswick at Oxted or elsewhere. *Alfred O. Walker.*

RHODODENDRON-FIBRE.—Walking through my woods one day, I was much struck by the fibre where some old Rhododendrons had been cut down. I pulled up some and examined it, and came to the conclusion that it was admirably suited for Odontoglossums. I thereupon experimented with it, both with some established and imported crispums. I am now able to report very favourably upon the fibre. I find the roots of imported crispums go into it very freely. I use sphagnum in about the same quantity as with peat, if anything, rather less. It is rather retentive of moisture, and hence does not need such frequent watering—a saving of labour in warm weather. Many gentlemen having old Rhododendrons should try the experiment, and give us the result of their experience. It will be a great saving on the peat-bill. *R. Brooman White.*

ORANGES FROM SEED.—In the Hybridisation Conference Report in the *Journal of the Royal Horticultural Society*, p. 145, a discussion is recorded after the reading of the admirable paper by Mr. H. G. Webber, on "Orange Hybridisation," &c. In that discussion Mr. Bateson is reported to have said: "I should like to know whether Oranges, when grown from seed, fertilised with pollen of the same variety, produce good fruit. As I understand it, they are not propagated generally by seed." Regarding this question, it may perhaps be worth noting that in *The Cultivated Oranges and Lemons of India*, the following is recorded on p. 90. The Sântārā Orange of India is extensively grown in Shalla in the Khasia hills of eastern Bengal. This fine Orange is neither a Mandarin nor a Tangerine, but a kind allied to them, and larger than either. It is a very loose-skinned Orange, and in an interesting variety I met with in South India the ball of pulp-carbels actually rattled inside the rind covering. On the page quoted, Mr. C. Browlow says: "Here (in Shalla), in one large connected piece of about 1000 acres, is the garden that supplies a great part of Eastern, as well as Western Bengal, with Oranges." And on p. 91 he says: "In 1869 no grafting or layering was ever practised, but all the Shalla plantations were raised from seed." Everybody acquainted with this Orange declares it to be a very fine kind. Usually it goes under the name of "Sylhet Orange." In 1885, Mr. Stevenson, Deputy-Commissioner of Sylhet, gave me further information regarding the growing of this kind of Orange in the Khasia hills. He stated that the raising of Orange plants was by seed. Budding, grafting, or layering were never practised. Then, in the *Tropical Agriculturist*, Mr. H. A. Alford Nicholls, in an article on the Orange, wrote thus:—"In the West Indies Orange-trees are for the most part raised from seed, and no better Oranges can be grown in any other part of the world than those produced from some of these seedling trees." *E. Bonavia, M.D.*

THE WEATHER IN NORTH CORNWALL.—The rainfall during April was slight, the total being 2.28 inches: the greatest fall in twenty-four hours was 0.67 inches, measured on April 5, at 9 A.M.;

there were seventeen rainless days. From the 12th to the 29th inclusive, but 0.06 inches fell; the weather generally during this period being warm sunny days and dewy nights. A steady downpour of rain fell on the 30th, to the depth of half an inch, between 9 A.M. and 6 P.M. The early part of the month was cold and showery. The extremes of temperature, as registered by a thermometer standing at 3 feet above the ground and facing N., were 25° Fahr. on April 1, and 71° during Saturday 21st, on which day the first pair of swallows appeared here. The notes of the Cuckoo were first heard on the previous Wednesday. The barometric pressure has, on the whole, been very even: the lowest reading was 29.02 inches at 9 P.M. on April 3, and the highest 30.48 at 1 P.M. on April 19. *A. C. Bartlett, Pencarrow Gardens.*

MARGUERITE CARNATIONS.—I have enclosed a few blooms of Marguerite Carnations which I consider valuable for winter cutting. The seed was sown in March, 1899. As soon as the seedlings were large enough to handle, they were pricked off into pans, from them into 3-inch pots; as soon as they were well rooted, they were potted into 5-inch flowering-pots, and stood on coal ashes out of doors, their points being pinched out two or three times during the summer, and all flower-buds taken off until the end of September. They were taken into a cold greenhouse about the end of October. I commenced cutting in November, and have had plenty of beautiful blooms all the winter, which were very acceptable, and the plants seem as if they would flower for a long time to come. *J. Carpenter, Fairmile Court Gardens, Cobham.*

BAMBOOS.—I would like to draw attention to a few points in Mr. Benbow's calendar on Bamboos in your paper of April 14, which are somewhat in error. Under dwarf Bamboos as suitable for edging, Mr. Benbow mentions *A. anceps*, *A. Fortunei*, *P. bambusoides*. It is quite possible that Mr. Benbow has not the true plants, as there have been great mistakes in the sending out of Bamboos, such as *A. auricoma* for *P. aurea*, &c. *Arundinaria anceps* I know to be growing 10 feet, with every promise of going higher as the plant becomes older. *Arundinaria Fortunei* is growing 8 to 10 feet high. *P. bambusoides*, of which there are very few true plants in England, is a tall grower, and reaches 10 to 12 feet. Mr. Benbow mentions that Bamboos, when thoroughly established, require to be copiously watered during June, July, and August. Bamboos which have become established will take care of themselves. Mr. A. B. Freeman Mitford, writes, p. 2 of the *Bamboo Garden*—"They have stood through four winters and 26° of frost; they have resisted an even more deadly enemy than frost in the droughts of 1892, 1893, and 1895. Bamboos, when first planted, if in the summer, should receive a few waterings to establish them, after which they will take care of themselves. I may add, that the largest plant of Bamboo in England is grown on a hill entirely away from water." *V. N. G., Redruth.*

ODONTOGLOSSUM WILCKEANUM.—There seems to be a growing desire amongst some expert (?) orchidists to include most, if not all, the spotted forms of *O. crispum* under the above heading. That some of them have a great many of the characteristics I am willing to admit, and can readily agree to the inclusion of the variety known as *O. crispum Schroderianum*, for no one who saw it at the meeting of the Royal Horticultural Society on January 23 would doubt that *O. luteo-purpureum* was one of the parents; but the white-ground forms should have some distinguishing cognomen, or there will be great confusion with plants when sold out of flower, except to those who profess to be clever enough to tell by the pseudo-bulbs whether it is a white or yellow-ground variety, a talent which, I must confess, I do not possess. Personally, I do not believe that *O. luteo-purpureum* is responsible for all the spotted forms of *O. crispum*, especially amongst the broad-petalled or Pacho type; for it is a well-known fact that an *O. luteo-purpureum* rarely flowers from amongst the best types of *O. crispum*. Indeed, I do not remember a single instance; and my experience extends over a great number of years. That they are found growing in quantity in the district whence comes the starry forms of *O. crispum* I am well aware. I would suggest that the genuine yellow-ground variety be called *O. luteo Wilckeanum*, and the white-ground form *O. crispo-luteum*. This would avoid mistakes and misunderstanding when plants are sold out of flower. These remarks I

mean to apply only to those forms in which distinct traces of the crest of *O. luteo-purpureum* is to be found; for without that, they are simply forms of *O. crispum*. *Odonto*.

CUCUMBER-DISEASE.—The Cucumber-disease, described on p. 274, I think is very prevalent this season. Owing to the exceptionally dull and cold spring, it has been impossible to ventilate the houses so freely. I feel convinced that this has greatly favoured the disease, which appear to like a close and stagnant atmosphere. I have heard of a whole batch of plants that were lost last season from this disease. They were grown without air. What is the experience of other readers? Last year I mixed soot and lime in equal proportions, and dusted the surface of the soil with it, and afforded ventilation before the temperature ran up very high. Some of the plants recovered, but they did not fruit nearly as well as unaffected plants. *H. W., Newport.*

RAPID GERMINATION.—Yesterday at 1 o'clock P.M., I sowed seeds, fourteen years old, of *Cassia alata*, L. (which I had filed for easier germination);

wasp came and snatched another grub and flew away with it. For years I have climbed Pear-trees 20 feet high, and never saw a wasp eating whole fruit, but only those that had been partly eaten by birds. *W. G. Park'n, Sheffield.*

MR. W. R. FISHER ON FORESTRY.—Frequent absence from home lately has prevented me looking up this subject, and asking you to allow me to correct several rather inexcusable errors on Mr. Fisher's part in his review of my book in the *Gardeners' Chronicle* of March 17; but quite unconnected with his opinions of the book itself, he states, p. 164, speaking of my directions on nursery planting: "Right" and "wrong" root-form—that the suggestion "is taken from *Schlich's Manual of Forestry*." That is not the case; the suggestions and directions are my own. I have copied nothing from Schlich or anyone else, without acknowledgment, so far as I am aware; and I asked and obtained permission from Professor Schlich himself before I quoted him at all. Had Mr. Fisher's acquaintance with planting begun earlier than the appearance of *Schlich's Manual*, he would have known that the subject in question

might have added other Fir and Beech; and as these constitute about four-fifths of the woods of North Europe and Germany, the reader will judge whether clear-cutting is common or not over a big area. As regards the distance apart to plant young forest-trees, Mr. Fisher outdoes Brown when he gives the proper distance as "4 feet by 4 feet, as near enough for most species," and doubts my description of close planting in Germany, and planting several plants in one hole. I was quite correct, however. I could take him to Scots Fir and other woods in Germany where the trees, about forty years of age, are standing in groups from 18 inches to 3 feet apart, from tree to tree, and show him miles of Spruce, with three trees in a hole, about twenty years of age (see plates Nos. 2 and 4 in my book). German foresters have no such arbitrary figures as Mr. Fisher suggests, and do not proceed on his principle at all. I refer him to *Schlich's Manual*, vol. ii. p. 76. "Density of Planting," we are told, is governed by general principles, not by the foot-rule. Over-head canopy is to be established in five years, or at most ten years. Will Mr. Fisher name any Fir usually planted, or even hardwoods, that will do that at 4 feet? No! density of planting is determined, according to Schlich, by "A. Locality," "B. Species," "C. Age and Size of Plants," "D. Objects of the Plantation," "E. The State of the Market." If we put the maximum at say 4 feet, therefore, and Schlich's is less, the minimum must be getting crowded, one would think, say 18 inches or several in a hole, one or the other it must be. I repeat, that close planting, and planting several trees in one hole, is the German practice and the French, too; and I presume that Schlich and Bagneris ought to know. The latter says that large and well grown plants are to be put out at distances according to their size, so as to form a leaf-canopy in a short time. At p. 229 he says: "If only one-year-old seedlings are used, as is to be recommended for the Scotch Pine, Spruce Fir, &c., it is always prudent to plant in clumps of two or three plants each" (that is, in one hole). "This is done," he adds, "in the hope that one at least will succeed; and if all live, one of them is sure to be more vigorous than the rest and overtop them." Thus we find Mr. Fisher condemning both French and German methods of planting as "involving needless danger from disease, while leading to deplorable waste of money. He is unlearning his continental forestry fast. He is at variance with his monitors. *J. Simpson.*



FIG. 101.—PARIS EXHIBITION: TO THE LEFT OLD PARIS AND THE HORTICULTURAL PALACE; TO THE RIGHT THE PALAIS DES ARMES. (SEE P. 318).

to-day at 5 o'clock P.M., I found the seeds germinated, thus in twenty-eight hours. I sowed them in pots in a frame hotbed with hot-water pipes, temperature 90° to 110°; the temperature in the hothouse was constantly above 80° (maximum 90°), the whole day. Is this rapid germination remarkable? *M. Buysman, May 7, 1900.*

HOW TO KILL THISTLES.—In order to kill Thistles, I send a boy round with a can of paraffin, and tell him to put a teaspoonful upon the head of each; in a few weeks time they will all be dead, and if you like to dig up the rotten roots they will be found to smell strongly of the oil. Can you or any of your readers inform me how I can rid myself of Nettles in an equally simple manner? As far as my experience goes, paraffin has no effect whatever in destroying Nettles. *Robert King.*

SEEDLING OF BEGONIA GLOIRE DE LORRAINE.—We have a batch of seedlings up from *B. Gloire de Lorraine*, crossed with other varieties. *J. Peed & Son, Roupell Park Nurseries, West Norwood, London.*

WASPS.—Your correspondent, "D.," in the issue for April 28, writes, "to the gardener there are, next to the sparrows, no worse plagues than wasps." Some years ago I was collecting a few white grubs hanging from the trees by a long fine web for my aquarium fishes, and while so doing a wasp alighted on one of the grubs, ate it, and flew away. Almost immediately afterwards a second

was discussed long before that time. I should think it is twenty years since I first wrote in various papers, condemning the wrong root form, which I have always shunned in practice. Some ten years ago, or thereabouts, I sent to the Editor of the *Gardeners' Chronicle*, two trees from a public nursery, of which fig. 3 in my book is a portrait. That was before *Schlich's Manual* was published, or at least before I heard of it. I asked the Editor if he ever saw such "horrors," and his reply in a note was, "No, never." All the cuts on this subject in the *New Forestry* are original, and drawn from Nature by my son in Scotland, who had no *Schlich* in his possession. Mr. Fisher's experience is too recent, and if there has been any borrowing, the boot is on the other leg. Dr. Lindley, in his *Theory and Practice*, described and illustrated the danger of perverted artificial root form in forest trees over forty years ago, and it is thirty years since I read it. At page 163 is Mr. Fisher's next mistake. He says that clear cutting "is followed extensively only in Saxony," whereas I was told, in Germany, by Dr. Koenig and others, that the practice was more or less common all over Germany; and plate No. 3 in my book was taken in the Hartz Mountains, and not in Saxony, where I was told of clear cuts but saw none. I would like Mr. Fisher's authority for stating that clear cutting is "greatly disliked" in France. Bagneris does not say so. As to the extent to which it is practised in Germany, Mr. Fisher admits it is an excellent system for Spruce, and he

— I must congratulate Mr. Simpson on having discovered the right method of producing good roots on nursery transplants before the appearance, in 1889, of Dr. Schlich's volume on *Sylviculture*, to which I referred in my note on *The New Forestry*; at the same time, when Mr. Simpson states that "my experience is too recent," I would remind him that I have been a forester since 1870. When I said that clear-cutting is followed extensively only in Saxony, it would have been more correct to have stated that this system is employed for Scotch Pine and Spruce in North Germany, but that it is much disliked in Baden, Württemberg, and Bavaria, where its advocates are contemptuously termed *Kahlschläger*. It is, however, used for Scotch Pine in Württemberg, but not for Spruce, which is there, as well as in Baden and Bavaria, always grown by natural regeneration under a shelter-wood, blanks only being filled by planting. Except in very mild climates, the system is applicable only to hardy species; and the German foresters who conducted Mr. Simpson through the Thuringian forests would be ready to faint if they heard that clear-cutting was proposed for Beech or Silver Fir. The only case I have ever heard of clear-cutting in a Beech forest is that of the Forêt de Soignes in Belgium, and even there, natural regeneration under a shelter-wood is now carried out. Silver Fir woods in Germany, France, and Switzerland, are always managed under one of the shelter-wood systems described in *Schlich's Manual*. My own experience as a pupil of Bagneris at Nancy in 1871, is that clear-cutting is detested in France; and I have just consulted the most recent French sylvicultural works by Boppe and Broillard without finding a word in its favour. If Mr. Simpson still doubts this, let him write to the Directeur-Général des Eaux et Forêts at Paris, and I feel no doubt as to the nature of the reply he will receive. The only case of clear-cutting I know of in France is that of the Cluster or Maritime Pine forests in Gascony.

and there all the trees in a felling area are tapped to death, and felled, and regeneration ensues by seed from the adjoining woods, favoured by the westerly breeze from the Bay of Biscay. Mr. Simpson says:—"I repeat that close planting, and planting several trees in a hole, is the German practice, and the French too." I cannot pass this statement by. If Mr. Simpson, instead of spending a hurried fortnight in Thuringia and some adjoining districts, had made a somewhat lengthy tour in various parts of Germany, he would have found—(1), that in Saxony, where European forestry gives the best financial results, it is considered that 2400 Spruce plants to the acre is the most profitable crop, and that is obtained by planting 4 feet 3 inches by 4 feet 3 inches; (2), that bunch or multiple planting of three plants in a hole, is employed chiefly in those districts which Mr. Simpson visited; and that, on the whole, not 10 per cent. of the plants put out in Germany are so planted. He says that 'overhead canopy is to be established in five, or at most, in ten years,' and that to secure this very close planting is required. If he will come to Cooper's Hill, I can show him a crop of pure Spruce planted in 1892 that are so dense already, that he could not walk through them; and several other species of trees of which the same may be said. Why waste money by planting too densely? It stands to reason that crowding three plants in a hole must involve danger from fungi, and I have worked long enough at forestry to have my own views on this matter, without reference to the opinion of the Thuringian foresters. I consider 3½ feet by 3½ feet close enough for any Pines, and that 4 feet by 4 feet is close enough for any other trees but Pine, and in some cases is too close for quickly-growing species, such as Larch and Alder. Mr. Simpson fears that I am unlearning my continental forestry fast. Considering that I visit continental forests every year, that I am constantly in relations with Dr. Schlich, who has 3000 acres of forests to manage in the Ardennes, and who visits German forests every year, and that my sole business is forestry, I would advise Mr. Simpson to travel, and see more than he has done at present, before venturing to teach me my business. *W. R. Fisher.* [This correspondence must now cease. Ed.]

SOCIETIES.

PARIS EXHIBITION, HORTICULTURAL SECTION.

THE second exhibition, which opened on May 8, was remarkable for the Roses, flowering and ornamental shrubs, hardy annuals, and biennials, and forced and preserved fruits that were staged. The standard Roses of M. HONORÉ DEFRESNE of Vitry, and the cut Roses from M. NABONNAND of Golfe Juan, were very fine; MM. LEVÊQUE ET FILS and ROTHEBO also sent beautiful Roses. MM. CROUX ET FILS sent a very large and fine set of flowering shrubs that occupied the centre of the rotunda, and with them some hybrid Azaleas and Rhododendrons. The Azaleas and Rhododendrons of M. MOSER should also be mentioned; the magnificent Lilacs and Clematis of M. GEORGES BOUCHER of Paris; a small collection of very choice Deutzias and Lilacs from MM. VICTOR LEMOINE ET FILS of Nancy, the pretty shrubs from M. DESIRÉ BRUNEAU of Bourg la Reine, and the Peonies from M. PAULLET.

MM. VILMORIN, ANDRIEU ET C^{ie}, of Paris, staged some fine masses of single and double Cineraria and Calceolarias, and a fine collection of hardy plants well chosen and arranged; M. FÉRAUD of Paris, sent two analogous sets in which the following Phloxes were especially noticeable: Nelsoni, bright rose; Douglasii, and P. divaricata canadensis, of a deeper colouring than the type; and the same exhibitor also sent twenty-five varieties of Primula cortusoides grandiflora, very prettily coloured. M. NONIN, of Châtillon, contributed a small mass of Bougainvillea glabra Sanderiana.

The flowering Aloes, and fine Phyllocactuses, Cereus, &c., from M. SIMON of Saint Ouen, were as successful as in former years.

The Palms and other large ornamental plants from the family of ANTOINE CHANTIN, were exceedingly fine.

M. LÉON DUVAL, of Versailles, staged a pretty little group of seedling Vrioses, and some fine seedling Anthuriums, among them President Sylvestre of Enay with an enormous spathe.

Other exhibits worth mentioning, were the large flowered Polargoniums from M. BOUTRUX; the Lilacs from M. AMÉDÉE LECOINTE; the fine Candias from MM. BILLARD and BARRÉ, of Fontenay aux Roses; Nemesis strumosa from M. GRAVEREAU; the collections of Tulips, Anemones, and other bulbous plants from M. E. THIÉBAUT of Paris, and M. THIÉBAUT of Legendre; the Gloxinias, Tydnas, Achimenes, and Scutellaria Mociniana, from MM. VALLERANT FRÈRES, the

Carnations from MM. CAYEUX and LE CLERC; the Crotons, Pandanas, Cycas, and Palms, from M. LOUIS DALLÉ.

M. DESRÈS (maison Lachaux), made a charmingly decorative arrangement with a group of Orchids mixed with Adiantum, Asparagus Sprengeri and plumosus, and foliage Begonias surrounded by Clematis, Lilies, Viburnum, Hydrangeas, Caladium, flowering Azaleas, and Palms.

Orchids were satisfactory, although not numerous. Those from M. O. DOIN, Château de Lamont, Dourdan, and from M. CHARLES MARON, of Brunoy, were specially noteworthy. M. MARON's collection included various seedling Cattleya and Lælia-Cattleya, among them L. x Imperatrice de Russie, and the variety superba, with rosy flowers, were those most admired. This group contained but one novelty; Lælia x Mozart of the same parentage as L. x pulcherrima, shown last year in London; many varieties were staged, one of which was very dark. I would also mention Lycaste Skinneri alba.

The group sent by M. DOIN, contained some choice and remarkable varieties. Among them were Cattleya Skinneri alba, C. Mendell, and C. speciosissima, very fine; the rare Odontoglossum Lindenii and O. triumphans, luteo-purpureum and radiatum; Phaius x Normani tenebrosus, richly coloured; Cattleya Schilleriana, of medium size, but intense colour; Lælia superbiens, very well flowered; L. purpurata, Cypripedium x macropterum, and other varieties.

M. BERANKE staged a fine collection; other good exhibits were those from MM. CAPPE ET FILS, DU VESINET, DALLÉ of Paris, and RÉQUIER of Fontenay-sous-Bois.

M. ANDRÉ showed a group of miscellaneous stove plants; and Lycaste Michelliana, a new species allied to L. cruenta.

Among the plants from MM. CAPPE ET FILS was a new hybrid Cypripedium from C. ciliolare x C. Charlesworthii, with the standard of the latter parent, but rather longer, and flushed at the extreme base with chestnut, the rest of the flower bright chestnut. Among foreign exhibits were a fine set of Rhododendrons and Azaleas from M. SKIDEL, Nurseryman, Dresden; Azaleas from MM. HELBIG, OLSBERG, and WEISSBACH, nurserymen of the same city; Tulips from M. BARNHAUT of Haarlem, &c. Further, Mr. THORBURN, seedman and florist of New York, sent two clumps of Pansies.

The firm of VILMORIN ANDRIEU & Co. staged a fine set of vegetables, and in the fruit section there were some splendid consignments from MM. PARENT of Rueil, SALOMON of Thomery, MICHIN, MILLET, CORDONNIER, MOTHRAU, the Société Régionale de Montreuil, and other exhibitors. G. T. G. Our illustrations (figs. 100, 101) show the Horticultural Palace, and the plantation of fruit-trees along the banks of the Seine.

ROYAL HORTICULTURAL.

Scientific Committee.

MAY 8.—Present: Dr. M. T. Masters (in the Chair); Mr. F. Im Thurn, Mr. Shea, Rev. W. Wilks, Mr. Mawley, and Rev. G. Henslow (Hon. Sec.).

Peach-trees diseased.—The following report was received from Dr. W. G. Smith upon the specimens received on March 26. He also observes that he is continuing the cultures of the fungi, as at present he is uncertain between "Fruit-rot" (*Monilia fructigena*) and a form of *Gladosporium*. The cause of discoloration of the bark of twigs is evidently a fungus which can be found in these parts. The absence of good examples of reproductive organs renders identification uncertain. In the twigs the fungus has passed the winter, and made its way into the leaf-buds and flowers, causing the damage there. With a fungus such as this the course of treatment is summer spraying. Peach foliage is delicate, and the spraying solution must be dilute; for example, Bordeaux Mixture made with not more than 2 lbs. copper sulphate, and 2 lbs. quick-lime in each 50 gallons of water. The foliage should be thoroughly wetted with a fine spray, preferably that given with a sprayer like those supplied by Strawson and other firms. In winter, pruning should be carried out, so as to remove all discoloured twigs. This treatment will probably require to be carried out for several seasons. The fungus might be identified if specimens of foliage were sent during the summer.

Vine leaves, diseased.—With reference to those sent to a previous meeting, from Gunnersbury, Dr. Masters observed that no mites could be detected by Mr. Michael, who carefully examined them; but that his opinion was confirmed that the diseased condition of the berries was most probably due to a young condition of *Gladosporium*.

Larix occidentalis.—Dr. Masters showed young cones of this species from Oregon, characterised by having green bracts, the European Larch having them of a red colour; it is described as the finest timber tree of N.W. America. It was discovered by Douglas, who mistook it for the European species.

MEETING OF THE GHENT HORTICULTURAL.

MAY 7.—At the conjoint meeting of the Chambre Syndicale des Horticulteurs Belges and the Société Royale d'Agriculture et de Botanique de Gand, the following awards were made:—

Certificates of Merit for Cultivation and Flowering for: Polygala Dalmatiana, from M. Em. De Cock; Correa speciosa, from M. E. Collumbien (par acclamation); Eriostemon myoporoides, from M. le Comte O. de Kerchove de Denterghem (à l'unanimité); Acacia Drummondii (par acclamation); and Veronica diosmeifolia, both from M. E. Bedinghaus; Kennedyia purpurea, from M. E. Collumbien (par acclamation);

Eriostemon floribundum and Bauera rubioides (par acclamation), both from M. E. Bedinghaus; Acacia linearis (à l'unanimité), also from M. E. Bedinghaus; Pimelea spectabilis, from M. E. Collumbien; Polygala Dalmatiana, from M. le Comte O. de Kerchove de Denterghem; Adenandra ciliata, from M. E. Collumbien; Anthurium "Souvenir d'Antoine Chantini," from M. Louis De Smet (par acclamation); and for Azalea balsamifera, from M. Oscar De Smet.

Certificates were allotted for cut flowers of Odontoglossum crispum var., and for Cymbidium eburneum Lowii, and for Odontoglossum crispum "Souvenir du Jubilee," and Zygopetalum Perrenondii, and Cattleya intermedia Parthenia (par acclamation), and for Odontoglossum crispum punctatum, all these plants from M. G. Vincke-Dujardin of Bruges. Also for Odontoglossum Cervantesii Illacinum, from M. J. De Cock; O. Ruckerianum colorans, from the Société anonyme horticole "La Lys" of Peteghem-les-Deynne; for Masdevallia Pourbaixi, from M. E. Vervae; Dendrobium atro-violaceum, from M. le Marquis de Wavrin; for Cattleya Schröderi var. "ami Arthur Vanden Heede," also from M. le Marquis de Wavrin; for Azalea Mdlle. Germaine Van Coppennolle (branche Asie), from M. J. De Kneef; for Dracena Armand de Meulenaere (seedling 1898), from M. L. Denobele; for two seedling Azaleas from M. J. Vervae; and for six new Azaleas from the same exhibitor.

Honourable Mention for cultivation and blooming were awarded for Hardenbergia monophylla fol. var., from M. E. Bedinghaus; Correa ventricosa, from M. Em. De Cock; Libonia floribunda, from M. Em. Collumbien; and Genista Evestriana, from M. le Comte O. de Kerchove de Denterghem. Honourable Mention was awarded for Erides Sanderianum, from M. G. Vincke-Dujardin; Lælia purpurata var., from M. J. Boelens; and seedling Azaleas, from MM. Versyp Frères & Soeurs.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

MAY 10.—On this occasion, the members of Committee present were: Messrs. G. Shorland Ball, W. Thompson, A. Warburton, W. Stevens, J. Leemann, E. J. Lovell, W. Holmes, C. Parker, W. Bolton, W. Duckworth, J. Cypher, and P. Weathers (Hon. Sec.).

This was the first meeting of the 1900-1901 season, and opened auspiciously for the Society, which has now entered on the fourth year of its existence. The past year was successful in every way, and the Society is in a sound financial condition; so much so, in fact, that it has handed over the profits of the past year's working to the Royal Botanical and Horticultural Society of Manchester.

The result of the competition for points gained by exhibitors, showed that Mr. Leemann took the highest number, as he deserved. Mr. Thompson, of Stone, being 2nd; while Mr. Baxter, of Morecambe, came 3rd. Gold, Silver-gilt, and Silver Medals being gained respectively by these amateurs. The meeting on the above date was a good one, and a nice lot of plants were staged.

G. SHORLAND BALL, Esq., Wilmslow (gr., Mr. Gibbons), usually sends some plant or flower of more than average merit. The best that he sent on this occasion was a fine plant of *Cologyne pandurata*, a species which was for the first time brought before the Committee. The plant was sufficiently well grown to gain a Cultural Certificate in addition to the First-class Certificate almost unanimously awarded. From the same collection came a fine form of *Odontoglossum Alexandræ* (Award of Merit); and a good plant of *Oncidium concolor*.

J. LEEMANN, Esq., Heaton Mersey (gr., Mr. Edge), showed a magnificent group of plants, amongst which were many fine *Odontoglossums*. The following eight plants received Awards of Merit:—*Odontoglossum crispum* var. Magister, O. c. var. Rodigasiana, O. Pescatorei var. Empress Frederic, a beautifully spotted form; O. c. Mont Blanc, O. x Andersonianum canarie, O. Ruckerianum elegans, O. x Adriane var. spectabile, O. c. var. mirabilis. They were all pretty flowers. A fine form of *Cattleya Mendellii* called Illustris received an Award of Merit, and the Committee awarded a Gold Medal for the group.

W. THOMPSON, Esq., Stone (gr., Mr. Stevens), showed a cross-bred *Odontoglossum* between O. cirrosum and O. x Halli, showing the characters of each parent, and bearing some resemblance to forms of O. x elegans (Award of Merit). Several other good plants came from this collection, and a Vote of Thanks was given for the group.

T. BAXTER, Esq., Morecambe (gr., Mr. Roberts), had a small group of *Odontoglossums*, O. crispum, T. Baxter, being very fine, with large pale rosy markings (Award of Merit); a similar award being made for O. x Adriane Morecambensis (Vote of Thanks).

W. DUCKWORTH, Esq., Flixton (gr., Mr. Tindall), showed a good form of *Cypripedium Lawrenceanum* Hyeannum, and received a First-class Certificate.

S. GRATRIX, Esq., Whalley Range (gr., Mr. McLeod), sent *Cypripedium Lawrenceanum* var. Gratrixianum, an albino form closely allied to the foregoing, but it has a greenish brown tinge in its petals instead of the Pea green of Hyeannum. This plant received an Award of Merit, as did also *Odontoglossum* x Wilckeanum var. Prince of Wales, Lælia-Cattleya x Zephyrus, which seems to be almost identical with L. C. x Ascania.

R. ASHWORTH, Esq., Newchurch (gr., Mr. Pidsley), sent a very nice group of plants, amongst which were *Dendrobium nobile* Amesiae, Award of Merit, D. n. Richard Ashworth, which although undoubtedly a pure noble, which seemed to

partake of some of the feathers of *D. macrophyllum superbum* (Award of Merit). *Odontoglossum Pescatorei* Lord Methuen, is a pretty form, and resembles the well known variety *Vetrichi* in many respects (Award of Merit); a good form of *O. Andersonianum* also gained an Award of Merit.

W. Watson, Esq., Streteford (gr. Mr. Jones), sent a finely-grown piece of *Odontoglossum Alexandrie*, showing three spikes of bloom from one pseudo-bulb; and a good form of *Cattleya Mendellii*. A. Z. Lees, Esq., Streteford, sent a plant of *Laelio-Cattleya* x *Highburyensis*, and ordinary form. Mr. J. Cypher, Cheltenham, exhibited a very fine form of *Cypripedium niveum giganteum* (Award of Merit); also a very peculiar form of *Laelia prestans*, and a good form of *Cattleya Mendellii* (Vote of Thanks).

Mr. J. Robson, Altrincham, gained Awards of Merit for *Cattleya Mendellii* Lord Roberts, and *O. M. Empress*, both handsome varieties.

L'HORTICOLE COLONIALE, Brussels (Linden), exhibited a fine plant of *Miltonia vexillaria* var. *Memoria Lindeni*, rich in colour, and of fine size (Award of Merit).

Messrs. HEATH & SON, Cheltenham, sent a beautiful form of *Phalenopsis amabilis gigantea*, and a collection of *Dendrobium Fycheanum*. Mr. W. B. BOLTON, Warrington, staged a charming group of *Cattleyas*, principally *C. Mendellii*, amongst which were some choice forms, one received an Award of Merit, the same award being given for a plant of *Cattleya Schroderae* alba. P. W.

ROYAL BOTANIC.

MAY 16.—The summer exhibition was held in the society's beautiful gardens, Regent's Park, on the above date, and like that of last year it was only a very moderate success. The practice of holding these summer shows under a marquee upon grassy mounds and slopes purposely prepared, has apparently been abandoned since exhibitors have become so few. At any rate, the exhibits on Wednesday last were arranged in the long corridor that has usually served for the spring shows, and in the conservatory.

The few imposing and attractive collections of plants included *Roses* in pots from Messrs. W. PAUL & SON, Waltham Cross Nurseries, Herts.; Peach, Nectarine, and Cherry-trees in fruit from Messrs. T. RIVERS & SON, Sawbridgeworth; and *Cinerarias* from Messrs. J. CARTER & CO., High Holborn. To take the last first, Messrs. Carter's *Cinerarias* were arranged in a beautiful group upon the floor of the conservatory. The strain was that of *crucata* varieties, and these plants being of considerable height, they were interspersed with dwarf double-flowered *Cinerarias* and *Ferns*, and the effect was very good, there being a very extensive variety of tint.

Messrs. RIVERS' fruit-trees were grand, and were cropped with abundance of highly-coloured fruits, just as previous exhibits from Sawbridgeworth have been. They illustrated the capital early-fruiting *Nectarine Cardinal*, *Peaches Duchess of York* and *Waterloo*, and *Cherry May Duke*.

To Messrs. PAUL'S *Roses* was due a large share of the floral effect of the show. They had numbers of *Roses* in pots, fine specimens, with healthy foliage and fragrant blossoms of brilliant colours. Conspicuous among more popular varieties were *Danmark*, *Violet Bouyer*, *Enchantress*. There were also *Glimmering Mrs. Grant* (very fine), *Aurora*, a large, full pink flower; and *Corallina*, a pretty little *Rose* with brightest crimson, almost scarlet buds. Whilst writing of *Roses*, we must mention some exquisite cut blooms in large variety which were shown by Mr. B. R. CANT, Colchester. These were shown in the competitive classes, and their quality was very high.

Tulips were shown capitally by Messrs. BARR & SONS, King Street, Covent Garden; and by Mr. B. HARTLAND, Cork. Messrs. BARR's exhibit included numerous varieties of *May-flowering Tulips*, among which were "Darwin" or breeder varieties. But English varieties were also represented by some good flowers. This firm had also some *Poeticus* and other late-flowering *Narcissus*, and a number of hardy flowering-plants, as *Alpine Phloxes*, &c.

Mr. BAYLOR HARTLAND'S *Tulips*, though *May-flowering* varieties, did not include any of the "Darwin" or "breeder" section. They were all single flowers, many of them very sweetly scented, and they were shown in bunches of six; there being about forty varieties. Two of the prettiest were *The Fawn*, which in form resembled *Bouton d'Or*, but was tinted something like the plumage of a dove, and the interior base was rich yellow. The second variety with the rather fanciful name, *Laghorn Bonnet*, was of two shades of yellow; the centre of the segments being deeper in tint than the margins. The collection included a number of species and varieties of species, among which were noticed *T. ixoides*, which has a dark purple spot at base; *T. spatulata aurantiaca maculata*, *T. fulgens lutea*, &c. The flowers, notwithstanding they had travelled so long a distance, were fresh and of excellent quality; and they were less symmetrical in form than are "breeders."

In a group of decorative and flowering plants from Messrs. J. LAING & SONS, Forest Hill Nurseries, London, S.E., was noticed some *Streptocarpus* of uncommon colour; some were named *Royal Blue*, and others *Royal Purple*. In each case the colour was very rich.

There were sprays of the more attractive of flowering *Crabs* and other shrubs, from Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley. *Prunus sinensis alba plena* was delightful, as was *Exochorda Alberti*, with flat blossoms of five wide white petals.

The sweet little *Daphne Cneorum majus* was present in abundant and splendid specimens from Mr. A. KNOWLES

Horsell Birch Nursery, Woking. Some plants shown as an improved variety had no distinctive characteristic, unless it was a larger and freer growth.

In the competitive classes, which throughout were of little importance, Mr. T. Abbot, gr. to CAMPBELL NEWINGTON, Esq., The Holme, Regent's Park, obtained 1st prizes for twenty-four bunches of cut blooms of stove and greenhouse plants, for *Glöxinias*, zonal *Pelargoniums* in flower, &c.

Mr. Geo. Cragg, gr. to W. C. WALKER, Esq., Percy Lodge, Winchmore Hill, had 1st prizes for a group of *Orchids*, and for two *Dracenas*.

MISCELLANEOUS SOCIETIES.

Wargrave Gardeners.—At the fortnightly meeting on the 2nd inst., Mr. W. Pope (gr. to J. P. White, Esq., "The Willows"), read a capital paper on "Fuchsias, and how to grow them." After carefully explaining the details of cultivation, Mr. Pope recommended the following varieties as very worthy ones:—*Beauty of Cleveland*, *Harry Alls*, *Bluebell*, *La France*, *Miss L. Vidler*, *Monarch*, *Blue Beauty*, *Chris Colman*, *Washington*, *M. Hermitte*, *General Dodds*, *Albert Delpit*, and *Countess of Aberdeen*.

Beckenham Horticultural.—On Friday evening, May 11, a paper was read before the members of the above Society by Mr. James Hudson, V.M.H., on "The cultivation of Fruit-trees in Pots." Peaches, Nectarines, Plums, Cherries, Figs, Apples, and Pears, were all dealt with; cultivation carefully described, and varieties recommended for various seasons and purposes. Mr. Hudson's long experience and success as a cultivator, made the subject of value and interest, as only points tried at Gunnersbury House were given. The great recommendation of growing fruit-trees in pots, was the succession of crops that could be obtained in one fruit house. Annual potting was necessary to keep up vigour, and low night temperatures to prevent over luxuriance of foliage; 9-inch and 10-inch pots were large enough for any tree. A discussion followed, and a vote of thanks was accorded.

Obituary.

WILLIAM NICOL.—On Saturday, 12th inst., at Cluny Churchyard, Aberdeenshire, amid every manifestation of respect, took place the funeral of Mr. William Nicol, forester on the Cluny estates. Mr. Nicol, who was a native of Aboyne, Aberdeenshire, served his apprenticeship as a gardener, and afterwards went to England. He returned to Scotland to become gardener to Mr. Pirie, Stoneywood House, Aberdeenshire. From here he went to fill the post of land steward to Colonel Lumaden, of Pitcairne. For the past sixteen years he has been forester to Lady Gordon-Cathcart, Cluny Castle. Mr. Nicol leaves a widow and grown-up family, and his death is much regretted in the district where he was widely known and highly respected.

MARKETS.

COVENT GARDEN, MAY 17.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

OUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arums ...	1 6-2 6	Maidenhair Fern,	
Asparagus "Fern,"		per doz. bunches	6 0-8 0
bunch ...	2 0-2 6	Marguerites, p. doz.	
Carnations, per doz.		bunches ...	8 0-8 0
blossoms ...	1 6-2 6	Mignonette, 12 bun.	4 0-6 0
Cattleyas, per dozen	12 0-15 0	Narcissus	
Encaria, per dozen	3 0-5 0	sant's Eye, doz. bun.	1 6-2 0
Gardenias, per doz.	1 6-3 0	Odontoglossum, doz.	4 6-9 6
Gladiolus, scarlet,		Roses, Red, per doz.	3 0-5 0
per dozen ...	5 0-6 0	— Tea, white, doz.	2 6-4 6
— white, per doz.	3 0-4 0	— Yellow, Fries,	
Iris, per dozen		per doz. ...	2 6-8 6
bunches ...	4 0-6 0	— <i>Eden</i> , per doz.	3 0-8 0
Lilac, white, bunch	3 6-6 0	— <i>Maréchal Niel</i> ,	
— mauve, bunch ...	3 0 —	per doz. ...	6 0-10 0
Lilium Harrison,		— Catherine Mer-	
per dozen blooms	4 0-6 0	met, per dozen	4 0-6 0
Lilium longiflorum,		Smilax, per bunch	4 0-5 0
per dozen ...	6 0-8 0	Tuberose, per doz.	
Lily of Valley, per		blossoms ...	0 6-1 0
doz. bunches ...	8 0-12 0	Tulips per bunch	0 6-1 6

REMARKS.—There is a large supply of Gooseberries, demand slow, with a decidedly downward tendency. Seakale is past.

POTATOS.

Main Crop, and Up-to-Date, &c., 85s. to 100s.; Dunbars, 110s. to 115s.; other varieties, 70s. to 95s.; Belgian and German, various, in bags, 8s. 6d. to 4s. John Bath, 82 & 84, Wellington Street, Covent Garden.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Acacias, per dozen	12 0-18 0	Ferns, small, per 100	4 0-6 0
Adiantum, p. doz.	5 0-7 0	Ficus elastica, each	1 6-7 6
Arbor-vita, var. doz.	6 0-8 0	Foliage plants, var.,	
Aspidistra, p. doz.	18 0-30 0	each ...	1 0-5 0
— specimen, each	5 0-10 6	Genistas, per doz.	6 0-9 0
Crotons, per doz.	18 0-30 0	Lily of Valley, each	1 9-3 0
Cyclamen, per doz.	8 0-10 0	Lycopodiums, doz.	8 0-4 0
Dracenas, var., doz.	12 0-30 0	Marguerite Daisy,	
— viridis, per doz.	9 0-18 0	per dozen ...	8 0-12 0
Dutch Hyacinths,		Myrtles, per dozen	6 0-9 0
per doz. ...	8 0-15 0	Palms, various, ea.	1 0-15 0
Ericas, var., per doz.	12 0-36 0	— specimens, each	21 0-68 0
Eucynthus, various,		Pelargoniums, scar-	
per dozen ...	6 0-18 0	let, per dozen	8 0-12 0
Evergreens, var.,		— Ivyleaf, per doz.	8 0-10 0
per dozen ...	4 0-18 0	Primulas, per doz.	5 0-8 0
Ferns, in variety,		Spiraeas, per dozen	6 0-12 0
per dozen ...	4 0-18 0	Tulips, per doz.	1 6-2 6

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, Nova Scotia,		Grapes, Muscated,	
and American		new, per lb. ...	4 0-8 0
per barrel ...	16 0-20 0	— Alicante, per lb.	3 0-4 0
— Tasmanian (var-		— Belgian, ...	2 0-3 0
ious sorts)		Melons, each ...	1 3-2 0
case ...	10 0-12 0	Oranges, Jaffa ...	15 0 —
Apples, Victorian,		— Blood ...	9 6 —
cases ...	11 0-13 0	— Naples ...	9 0 —
Apricots, box 24 ...	1 0 —	— Valencia ...	15 0-21 0
Bananas, bunch ...	6 0-8 0	Peaches, per dozen	
Cherries, per box ...	1 3-1 6	Class A ...	12 0-24 0
— in sieve ...	8 6-12 0	Class B ...	4 0-9 0
— strikes ...	8 6 —	Pines, each ...	2 0-3 6
Figs (New), p. doz.	3 0-9 0	Strawberries, per lb.	
Gooseberries, pecks	2 6-4 0	Class A ...	8 0 —
Grapes, Hamburg,		Class B ...	2 0 —
new, per lb. ...	2 9-4 0		

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe,		Mushrooms, house,	
per doz. ...	2 9-3 0	per lb. ...	0 8-0 10
Asparagus, Spruce,		Onions, picklers,	
per bundle ...	0 4-0 8	per sieve ...	4 0 —
— English, natural		— Egyptian, per	
— Giant, bundle ...	6 0-8 6	cwt. ...	6 0 —
— Toulouse ...	2 3 —	Parley, 12 bunches	1 6-2 0
Beans, Channel		per sieve ...	0 9-1 0
Islands, per lb.	0 0-0 10	Pears, French, per	
— French, packets		Flat ...	3 0-4 0
per lb. ...	0 6-0 7	— Jersey, forced	
— Broad, or		per lb. ...	0 9-0 10
— Longpods, in		Potatoes, New	
flats ...	3 6-4 0	Channel Is-	
— English Dwarf		lands, frames,	
per lb. ...	0 9-0 10	per lb. ...	6 2-0 8
Beetroot, per dozen	1 0 —	— per cwt. ...	20 0-22 0
— per bush ...	2 0 —	— Teneriffe, in	
Broccoli, Cornish,		boxes, cwt. ...	14 0-16 0
per crate ...	7 0-12 0	— French Kidn., in	
Cabbage, tally ...	4 0-6 0	boxes, per lb.	0 2-1 6
— dozen ...	1 0-1 3	— per cwt. ...	14 0-17 0
Carrots, English, p.		— Lisbon, per box	6 6 —
dozen bunches	2 6-3 0	Radishes, Long, doz.	
— cwt. bags ...	3 6 —	bunches ...	0 4-0 6
— new, bunches	0 6 —	— round, doz. ...	0 6 —
Cauliflowers, per		Rhubarb, home	
dozen ...	8 0 —	grown, natural,	
Cress, doz. punnets	1 6 —	per doz. bunches	1 8-1 6
Cucumbers, doz. ...	2 0-4 0	— Yorks ...	0 9-1 0
Endive, new French,		Salad, small, pun-	
per dozen ...	1 6 —	nets, per dozen	1 3 —
Garlic, per lb. ...	0 3 —	Salsify, bundle ...	0 5 —
Horseradish, Eng-		Shallots, per lb. ...	0 8 —
lish, bundle ...	2 0 —	Spinach, Spring,	
— foreign, per		per bushel ...	1 6-2 0
bundle ...	1 0-1 2	Tomatoes, Canary,	
— loose, per doz.	1 6 —	deeps ...	2 6-4 0
Leeks, p. doz. bunches	1 0-1 6	— English, new,	
Lettuce, French,		per lb. ...	0 7-0 9
Cabbage, dozen	0 6 —	Turnips, per dozen	
— French Cos		bunches ...	2 0- —
(good), per doz.	3 0 —	— new French, per	
Mint, new, p. doz.		bunch ...	1 0 —
bunches ...	2 0 —	Watercress, p. doz.	
		bunches ...	0 4-0 6

SEEDS.

LONDON: May 16.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that the approaching close of the Spring Season finds stocks and prices of both Clover and Grass seeds, alike moderate. Some low Trefoil has been bought for export to Germany. White Mustard is scarce and much wanted; and prices consequently exhibit a distinct advance. Full rates are asked for Rapeseed; whilst the Linseed market keeps strong. There is no change in Tares. Canary and Hempseed moves off slowly on former terms. The cold weather naturally improves the sale for Blue Peas and Haricot Beans.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending May 12, and for the corresponding period of 1899, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1899.	1900.	Difference.
	s. d.	s. d.	s. d.
Wheat ...	25 4	25 11	+ 0 7
Barley ...	23 11	24 10	+ 0 11
Oats ...	17 9	17 11	+ 0 2

(For remainder of Markets and Weather, see p. x.)

THE TEMPLE SHOW.—It is earnestly to be hoped that the powers that be will see this year that the long tents at the Temple Show are properly ventilated. The tent last year where the Begonias, &c., were, was in the afternoon more like the hot room of a Turkish bath; this is neither required by the plants nor the public, and must be very trying to the various attendants who are compelled to remain by their exhibits. *R. Brooman White.*

ENQUIRY.

You may be interested in knowing that the *Rosa gigantea* sent me by Mr. Geo. Paul in 1898 has flowered this year, but not by any means profusely. The plant had been much hurt by strong winds, which destroyed much foliage and many buds. The Rose answered fairly well the description given in Messrs. Paul & Son's catalogue, but the flowers were quite white when open, with very beautiful golden-yellow stamens. The expanded flowers were about 4½ inches across. The buds were tinged with yellow, much like that of Cloth-of-Gold Rose, but this disappeared as the flower opened. I believe that whatever want of success the Rose had this year arose from what it suffered from wind. *Alfred Bovill, Puerto de la Cruz, Tenerife, April 21, 1900.*



* * The pressure on our space, and particularly the number of letters relating to the future of the Royal Horticultural Society, are so great that we are compelled to leave over many communications, even among those selected for insertion.

ALLOTMENTS: *E. K.* It would take many numbers of the *Gardeners' Chronicle* to answer such of your questions as could be replied to. Charles Dickens gave an account many years ago of the allotments on Sir John Lawes' estate. The Government has nothing to do with them; the matter is arranged between the landlord and the tenant according to circumstances, so that it is impossible for us to say how much is paid for them, or what is the rental, whether the roads are made or not, or whether any photographs are to be had. Some of the County Councils, as that of Surrey, interest themselves in the subject, and the Secretary might be able to afford you some information.

AURICULAS INFESTED: *W. Foster.* The infestation your plants are suffering from at the root and collar is that of a mealy aphid, *Trama auriculæ*. You may remove the soil and cleanse the main roots and the collars of the plants with soft-soap 2 oz., water 1 quart, Fir-tree oil a wineglassful. Of course, at this season it is rather risky to bare the roots, and the work is safer at the winter repotting. A less radical means of freeing the plants of the lice is to apply tobacco-powder with a small brush.

BOOKS: *H. W.* *The Amateur Orchid Cultivator's Guide Book*, ed. ii., by H. A. Burberry (published by Blake & Mackenzie, Liverpool), price 5s. Or if you would prefer a larger work, *The Orchid Grower's Manual*, ed. vii., by Henry Williams (published at the Victoria and Paradise Nurseries, Upper Holloway, London).

CUCUMBERS DISEASED: *H. T.* A form of "anthracnose," favoured by insufficient ventilation. It attacks the foliage and the outer skin of the fruit, causing the cracked appearance of specimens. With better ventilation, this should not be a difficult disease to get rid of. Experiments with this disease have shown the Bordeaux Mixture to be the best form of spraying solution. The formula is that with 4 lbs. of copper sulphate and 4 lbs. of quicklime in each 60 gallons of water used. A description of the method of preparation has been given several times in the *Gardeners' Chronicle* (see May 20, 1899).

Fern: *G. B. M.* The Fern sent is not a *Doodia*, but *Blechnum polyodioides*.

FRUIT PROTECTORS: *R. C. D.* We believe that the agent for the sale of these things is W. H. Beck, Esq., 115, Cannon Street, London, E.C. The patentee was the Rev. E. Darnley Smith, of Landseave Vicarage, Ashburton.

GRAPES DISEASED: *T. F. B.* The "spot" disease, caused by a fungus, *Glaeosporium laticolor*. No cure. Remove all affected berries and burn them. As a preventative apply sulphide of potassium once or twice, at the rate of half-ounce to one gallon of water. The last application should be followed by a syringing with clear rain-water in four or five hours.

HOLLY-LEAVES: *A. P.* The Holly-fly, *Phytomyza ilicis*. There is nothing to be done but pick off or sweep up as many leaves as possible and burn them.

INSECTS: *W. J. S.* Weevils, *Curculio* sp.; most destructive. Trap them with slices of Carrot or Potato, and go round at night.—*F. W. Cooper.* There were no signs of insects in the plants you sent, and it is impossible to identify them from the injured foliage.—*Secker.* The fly is a species of *Hematopoda*; the "grubs" you refer to are pupæ, and may belong to the same species.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*Col. Thompson.* *Pilea muscosa.*—*H. J. Ross.* *Florence.* *Orchis provincialis*, Balb.—*M. C.*, *Rothsay.* All three forms of *Ranunculus Ficaria*; 3 is a white-flowered form worth preserving.—*F. 1.* *Rhipsalis salicornioides*; 2, *Euphorbia Paralias*.—*C. A. F.* 1, One of the Ginger-worts, *Scitamineæ*; 2, *Coronilla glauca*; 3, *Clematis*, not in bloom; 4, *Maurandya Barclayana*; 5, *Sedum carneum variegatum*. Five guesses, but you afford us no means of giving a better opinion.—*Raithby.* We cannot undertake to name varieties of Roses.—*T. P.*, *Hythe.* 1, *Dendrobium pulchellum* of gardens; 2, *D. Pierardi*; 3, *Vanda tricolor*; 4, *V. suavis*.—*J. S.* 1, *Pothos argyræa*; 2, *Zebрина pendula*, and its variegated variety, more often called *Tradescantia* in gardens; 3, *Ruellia Portellii*.—*Young Gardener.* Ontario Poplar, *Populus deltoides*.—*J. S.*, *Lewisham.* 1, *Jacobinia coccinea* (*Justicia carnea* of gardens); 2, *Ribes aureum*.—*T. F.*, *Magdeburg.* *Odontoglossum* × *Andersonianum*, *Oncidium Phalenopsis*, and a very curious lavender-coloured form of *Cattleya Trianaei*.—*A. M.*, *Somerset.* 1, *Orchis mascula*; 2, *Doronicum plantaginifolium*; 3, *Valeriana Phu aurea*; 4, *Helleborus caucasicus*; 5, *Polygonum cuspidatum*; 6, *Berberis empetrifolia*.—*W. R.* *Sprekelia formosissima*.—*G. B.* 1, *Stenotaphrum americanum variegatum*; 2, *Pellionia pulchra*.—*W. W.* 1, *Saxifraga granulata*; 2, *Asperula odorata* (Woodroffe).—*R. J.* 1, *Centaurea montana*; 2, *Epimedium pinnatum*; 3, *Geranium pratense*; 4, *Triteleia uniflora*; 5, *Psychotria jasmiflora*; 6, *Lycaste aromatica*.—*G. C.* *Erica caffra*, so far as we can judge by the specimen sent.—*J. H.* 1, *Masdevallia Harryana splendens*; 2, *Masdevallia Harryana*; 3, *Chorizanthe varium*; 4, *Boronia elatior*; 5, *Foreythia suspensa*.—*Manilla.* *Scrophularia nodosa variegata* and *Amelanchier vulgaris*.—*L. B.* *Prunus Padus*.—*T. M.* We are not able to name your Bean.—*X. X.* 1, *Ulmus montana*; 2, Portugal Laurel, variety; 3, *Abies orientalis*; 4, *Sequoia sempervirens* (Redwood); 5, Perhaps *Cedrus Deodara*, or some other Cedar; 6, *Cephalotaxus pedunculata* var. *fastigiata*.—*L. G. O.* *Hakea linearis*.—*A. J. R.* 1, *Limnathes Douglasii*; 2, *Sherardia arvensis*; 3, *Lysimachia nemorum*; 4, *Geranium molle*; 5, *Myosotis versicolor*; 6, *Anchusa italica*; 7, *Saxifraga hypnoides*.—*W. M.* 1, *Prunus Padus*, Bird Cherry; 2, *Aucuba japonica*; 3, next week.—*L. G. F.* *Lomatia longifolia*.

NARCISSUS DISEASED: *R. W.* Your bulbs are in a similar condition to those referred to in our issue for April 21. But they are also badly gnawed by a grub, and they contain many bulb-mites.

NOTICE TO QUIT SERVICE: *W. W. G.* If you gave a month's notice, and that was accepted by your master, he is bound to pay you the remainder of the wages due to you if he demand that you leave his service at an earlier date. If you are living in a cottage on the place, and are allowed the usual perquisites, you can claim for

rent, and these likewise, for the unexpired time. The fact of there being no written agreement, presupposes the gardener to be a yearly servant, and as such entitled to one quarter's notice; but this is now usually abbreviated to one month, or money in lieu thereof. The gardener is classed as a domestic, and his employer is charged duty for him.

PLANT COLLECTOR: *R. A. S.* There is not the demand for plant collectors there used to be, and you might find considerable difficulty in obtaining an appointment in such a capacity. A very necessary qualification for the post would be a thorough knowledge of plants already in cultivation in this country, and the best places to acquire such knowledge are botanical gardens and nurseries.

STRAWBERRY PLANTS UNHEALTHY: *G. F.*, *Chichester.* One plant in fruit is badly attacked by mildew—*Sphaerotheca Castagnei*, the ravages of which can be kept in check by the use of sulphur, and by growing the plants in warm, sunny, well-ventilated positions in the forcing-houses. Remove every affected fruit and fruit-stalk, and puff sulphur in amongst the unripe fruit and leaves. The other plant has some of its leaves badly overrun with spots caused by a fungus—*Sphaerella Fragariae*. Plant in rich, porous soil in a warm position; and to kill this leaf fungus on plants in the open-ground, the Bordeaux Mixture might be used after the crop of fruit is consumed. Usually this species of fungus does but little harm to the plants, and it is nearly always present on them in the late summer months. It is good practice to trim off the older leaves from the plants in September, and burn them forthwith.

STRAWBERRIES: *S. W.*, *Newport.* The result of frost. Those flowers with black centre will not come to anything.

TOMATO LEAVES DISEASED: *Tomato.* Leaves utterly smashed in envelope in coming through the post. Please send more and better material, securely packed in fresh moss in a box. Meanwhile, it will be prudent to employ sulphide of potassium at the rate of ½ oz. in one gallon of water.

VINE DISEASED: *E. C.*, *Barnsley.* The Vine, Strawberry, and other leaves from the vinery, all showed a *Botrytis* fungus, probably the same as referred to in this column on April 21 last. This fungus is one of those which are present everywhere on decaying vegetable matter, and only attacks living plants that are in a weakly condition. The appearance of the specimens sent indicates that there is "something wrong" in the house. Probably it is want of ventilation, the cause of many indoor diseases at this time of year. The fresh manure on the floor is probably the nursery for the fungus. Top-dressings of this kind should be covered over with soot, ash-dust, coke-dust, or some substance unsuitable for fungus-growth. You will find useful hints upon means of prevention in a description of a Cucumber-disease that was given in our issue for May 5 last. If the house and soil, but not the plants in it, be sprayed carefully with copper-sulphate (1 lb. in each 20 gallons of water), it is probable the fungus will die out. At the same time give an increased supply of fresh air.

VINES: *G. J.* The leaves appear healthy. We cannot account for the shrivelling of the flowers; but they shall be examined, and reported on later.

WARTY VINE-LEAVES: *J. Moulton.* The flood lasting two or three days may have caused the appearance observed on the under surface of the leaves, which is due to excessive humidity in the vinery from some cause. Afford a little fire-heat by day and night, and as much ventilation as may be without ill effects on the Vine, and dryer conditions in the vinery, and the wartiness will not increase. Usually the warts under this sort of treatment dry up and change to a light brown colour; but in any case there is not much harm done.

COMMUNICATIONS RECEIVED.—*A. D. H.*—*W. B. H.*—*R. D.*—*H. R. H.*—*E. F. L.*—*A. R. P.*, *Nice*.—*A. S.*—*Rev. W. Wilks*.—*J. Cheal* and Sons.—*S. A.*—*E. H.*—*W. S.*—*R. P. B.*—*J. S.*—*W. Strugnell*.—*G. B. M.*—*E. B.*—*C. D.*—*J. H. G.*—*J. W.*—*J. S.*—*C. W. D.*—*G. T.*—*W. K.*—*W. C.*, *Totnes*.—*E. G.*



THE Gardeners' Chronicle

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THE PHYSICAL PROPERTIES OF SOIL.*

THE investigation of the physical properties of the soil, its so-called mechanical analysis into particles of various grades of fineness, upon which depends to a large extent the amenability of the soil to cultivation and its power of supplying water to crops, has of late years received greater attention than the chemical methods of examining the soil. Whether too much was expected from the chemist, or whether the method itself was essentially at fault, certainly the old way of determining the gross proportion of the principal elements of plant nutrition—nitrogen, potash, phosphoric acid, lime—present in the soil, has often failed to yield information of practical value to the cultivator; hence the German investigators, led by Professor Orth, of Berlin, in analytical matters, and by Professor Wollny, of Vienna, as regards soil physics, have been more and more concentrating their attention on the physical side of the question. The example of the Germans has been followed and extended by the younger school of American investigators in the various agricultural experiment stations that are so liberally scattered over the

United States, with the result that the experimental work carried out in the laboratory and in the field on this subject by Hilgard, Osborne, King, Whitney, and others, probably by this time exceeds in amount the whole of the continental work. In England, but little research of the kind has been done, hence the late Sibthorpe Professor has thought it well to prepare—first, for a lecture course at Oxford, and now in book form—a summary of the more important recent investigations, chiefly American, on the physics of the soil, with the view of inducing our younger agricultural teachers to pay a little more attention to questions of cultivation, and a little less to artificial manures. Professor Warington's book cannot fail to be of service to the serious student of agriculture; it brings together a mass of information that was scattered through scientific periodicals of various dates and countries, whereas hitherto the only place where the English reader could find any general view of the subject was in that excellent little book *The Soil*, published by Professor King, of Wisconsin, in 1895.

Soil physics, with which the book before us deals, is briefly the study of the laws of tilth, of the acts of husbandry as affecting the texture and water content of the soil; and as Professor Warington maintains at the outset, this question of tillage and management of the land is of far greater practical importance than manuring. Every farmer or gardener is well aware that one mis-timed cultivation may easily ruin all chance of getting a satisfactory crop; indeed, on some soils a single ill-judged operation may throw the land into a bad state that can never be rectified during the whole rotation, until the land goes down to grass again.

The only question is, whether the soil physicist will be able to provide much more practical assistance to the cultivator than the chemist has in the past, and we think Professor Warington rather exaggerates in its turn the value of a physical analysis of a soil; in the present state of our knowledge we doubt if more can be predicted from it than information of the most general kind, which any experienced man would gain by merely walking over and handling the land on one or two occasions.

Professor Warington in this connection draws attention to some of Hilgard's examinations of Mississippi soils, and Whitney's of Maryland soils; mechanical analyses are given of land suitable for market garden work, Tobacco, Wheat, and grass, and of these he says: "With these differences in physical constitution, the agricultural value of soils, and their suitability for the growth of different crops are plainly connected. We could hardly have a better illustration of the great influence of physical structure and of the extent to which this can be revealed by the methods of mechanical analysis." The example given hardly bears out this opinion, the classification (market-garden land, Tobacco, Wheat, and grass-land) is of a very general kind; neither here, nor in any other American work, is there a correlation of the soil analyses with those subtle but real differences in the working of particular soils which the cultivator learns by experience; indeed, we question if the American farmer is sufficiently practised in the finer arts of tillage and management of land to supply the analyst with the information necessary for the interpretation of the experimental results. Such classification as soil analysis gives may be of service to the pioneer opening up new districts, or introducing more specialised crops in what has been a roughly cultivated region; but in a country like ours, where there exists a body of actual experience about the behaviour of almost every individual field, the soil physicist has still to learn from, and not to teach, the cultivator.

Our own experience would tend to show that

the problems of soil-texture are too complex to be solved by a consideration alone of the sizes of soil particles. We have found, for example, that soil samples from almost contiguous fields on a well-marked tract of land that possessed special cultural characteristics, yet would vary by more than cent. per cent. in their proportions of sand and clay, although there were no differences in the behaviour of the land to tally with these variations in mechanical composition.

The first chapter of Professor Warington's book is devoted to a consideration of the methods of mechanical analysis. On the whole, he appears to give the preference to the process of grading the soil particles by means of water running at various speeds, which has been brought to the greatest refinement by Hilgard; and Schloesing's decantation method, which is practised in France and Belgium, is dismissed as crude. But, as Petermann has pointed out in his book on the Analyses of Belgian Soils,* the alkaline solution employed in Schloesing's method ensures that the material estimated as "clay" shall correspond very fairly in its chemical nature to pure clay, i.e., hydrated silicate of alumina, and with this our experience agrees; whereas the "clay" separated by the other methods is much more largely mixed with sand particles of excessive fineness. Of course, Hilgard's method is of great refinement in grading the particles of sand. It may be questioned, however, if this refinement is not something of a snare, tempting the observer to consider his work more accurate than is possible from the nature of the material; for our observations seem to show that in a country like England, of a markedly undulating surface, that has long been under cultivation, the mechanical composition of the soil varies enormously, even from field to field on the same type of land.

Chapters II. and III. deal with the relation of the soil to water, the movements of water within the soil as affected by cultural operations like ploughing, hoeing, mulching, and rolling—this is the part of the book that will particularly appeal to the gardener, for here he will find explained the principles that underlie much of his practice in the management of the land, and a proper appreciation of these principles cannot but quicken his observation when at work, and his powers of dealing with a novel situation. The discussion is plentifully illustrated by accounts of actual experiments, mostly carried out in America, and very skilfully devised to illuminate the point at issue; while, as he reads, the thoughtful gardener or farmer will be able to supply a running comment from his own experience.

The last chapter of the book deals with the movement of salts in the soil, with the composition of drainage waters, and the loss of plant food that thereby results, and particularly with the sterility arising from the accumulation of saline residues in or near the surface, when the percolation of rain-water through the soil is exceeded by evaporation at the surface. Under such conditions the soluble parts of the soil unused by plants, such as the sulphates of soda and magnesia and common salt, may accumulate to such an extent as to form a white incrustation on the surface that renders the land wholly or partially sterile; this occurs, for instance, in the white alkali soils of America, and again in other hot countries where irrigation is carelessly practised without under-drainage. The phenomenon on a small scale is not unknown to gardeners. Plants kept in pots for some time without a change of soil, and watered regularly with spring or well-water, gather up a hurtful excess of saline matter; and we have seen on a greenhouse Rose-border a characteristic saline efflorescence due to "white alkali" from the water used. The remedy is in all cases the same—to wash the salts out of the soil into the subsoil by increasing the amount of percolation through the soil. Professor Warington

* Lectures on some of the Physical Properties of Soil. By Professor R. Warington. (Oxford, Clarendon Press, 1900.)

* Recherches de Chimie, &c., Appliquées à l'Agriculture (Bruxelles), 1898.

might have found an interesting illustration of the point in Sir Alfred Milner's book on Egypt, where he shows how the English irrigation engineers found many of the lands had been rendered sterile, because only the old irrigation canals bringing the Nile water to the fields were in use, while the canals at a lower level, which should have returned to the Nile the water that had percolated through the soil, had been allowed to decay. When, however, the drainage canals were restored, and the lands well drowned to wash out the saline matter that had accumulated by evaporation, the fertility returned.

In conclusion, we have to thank Professor Warrington for a very instructive book on a little-known subject, that cannot but be fruitful both of thought and of suggestion to the agricultural teachers to whom it is commended, and also to the gardener and farmer. We cannot, however, help wishing that the book were something else—it is after all a compilation that might have been drawn up by another man. What the younger generation of agricultural investigators and teachers would have accepted from the Sibthorpean Professor with even fuller gratitude, would have been a little more criticism and suggestion of fruitful lines of research. The energy of the American researchers in accumulating results is not always tempered by wisdom, sometimes the wood cannot be seen for the trees, and instead of a wholesale commendation of their work, we should have preferred an ampler measure of the judgment and long experience of Professor Warrington himself. *A. D. H.*

A FINE CEDAR.

WESTFELTON is not only remarkable for the original Dovaston Yew figured at p. 147, *ante*, but for a noble Cedar of Lebanon, of which we give an illustration in its winter garb (see fig. 102). It has attained a height of 105 feet, and fortunately does not seem to have been injured by former falls of snow, as is so often the case.

ORCHID NOTES AND GLEANINGS.

LINDENIA.

THE last issued number contains figures and interesting historical details concerning:—

CYPRIPEDIUM GERTRUDE HOLLINGTON VAR. *ILLUSTRIS*.—The original cross was between *C. ciliolare* and *C. bellatulum*, and was figured in our columns in 1895, vol. II. It was raised by Mr. Ayling, gr. to A. J. Hollington, Esq. The present variety is remarkable for the richness and lustre of its colour; t. DCXCIII.

SOPHRONITIS VIOLACEA.—Discovered by Gardner on the slopes of the Organ Mountains, this species is remarkable for its rosy-purple flowers, which are produced in winter; t. DCXCIV.

ACINETA HUMBERTI, Lindley.—A noble Venezuelan species, with pendulous racemes of large flowers, with ovate acute yellow segments, densely maculate, and a shovel-shaped rosy-purple lip, partly encircling the column; t. DCXCV.

ODONTOGLOSSUM CRISPUM VAR. *PRIMUM*, Lind.—Flowers of medium size, flat, pentagonal, lobes oblong, acute, the petals broadest pure white, richly coloured with violet spots; the lip is included lanceolate, undulate, white, with violet spots, and yellow at the base; t. DCXCVI.

DENDROBIUM FALCONERI.

A very fine specimen of this graceful and showy *Dendrobium* is in flower at the present time in the collection of H. T. Pitt, Esq., Rosslyn, Stamford Hill. There were at one time no fewer than 106 fully expanded blooms on the plant. *D. Falconeri*, which was first described by Dr. Lindley in the *Gardeners' Chronicle*, 1858, p. 692, has, since then, been imported from various districts in the highlands of Hindostan, but owing to its requirements not being generally understood by cultivators, few have succeeded in making it grow satisfactorily for any length of time. The best position for it is said to be one that is close to the glazed end of a moist intermediate-house, or in some similar position where its slender, knotted stems can be sustained in a plump condition. Light spraying

daily during growing time is also recommended. The flowers on Mr. Pitt's plant are 3 inches across, white, tipped with amethyst-purple; the lip having a maroon-purple disc, with orange blotches on each side.

THE ROSARY.

PROSPECTS OF THE COMING SEASON.

As the month of May progresses, and the "winter of our discontent" has passed, we very naturally, if we are at all concerned in the culture of the Rose, ask ourselves what sort of season it will be, and although long experience has proved that the forecasts frequently made have been all upset by the character of the weather of our fickle climate, we are still unwilling to give up the pleasant though uncertain work. We know, however, a good deal connected with the prospects of the season by what we have already gone through.

It has been in many respects a strange season; the mild autumn weather which preceded and ran up to nearly Christmas kept some kinds of Roses

see what the forecast is from the west of England. From Oxford I hear that considerable damage has been done to the Teas by the December frosts. They had made a good deal of growth previously, continuing, as their wont is, to put forth fresh shoots when the weather is favourable; these being "lisky" and full of sap, succumbed easily to the spell of frost that we had in December. Of course, so far as dwarfs were concerned, this would only result in pruning away all the injured wood and trusting to the later buds pushing up, but this must of course result in a later bloom. Again, from a large grower at Bath I have the following information: "I am afraid the sharp morning frost of the last day or two has injured the Roses in this neighbourhood; yesterday it was very keen, and the young growths of the maidens were quite black in the afternoon. I do not know how the east of England has fared, but from what I hear it appears to be general in the west; it points, I think, to a late-flowering season." From the east of England I have the following from one of our most distinguished amateur Tea Rose-growers, and the other from a well known professional grower, the former says: "I do not think I have a single standard seriously injured, although many of them were absolutely unprotected. I do not mean that some of the wood did not show any signs of being touched by the frost, but I do mean that the ordinary pruning removed all such wood. With the dwarfs it was different, the wood in the majority being injured right down to the ground line. I think I shall only lose a very few, perhaps hardly any; and I do not consider my dwarf Teas suffered any more when unprotected than did my H.P.'s and H. Teas—these were very hardly hit." The professional grower says: "The Teas and H.P.'s wintered all right, both as standards and dwarfs, with now and then an exception; Marchioness of Londonderry was the only sort noticed which got really hard hit, and this made very strong late growth, and so was very liable to catch it. There have been several sharp frosts lately, the last one was on Wednesday, April 25, 8° or 10°; all early pruned Teas and H.P.'s that had shot out were cut back by this frost, and also many of the maidens. These spring frosts really do us more harm than the winter ones, and unless we get a sudden change to warm weather, Roses must be very late." How, then, can we in any way forecast in our very fickle climate? Here, for instance, we have had during the past few days temperature equal to that in the middle of July, ranging as high as 73°. Everything, therefore, seems to make it likely that the season will be a late one, and that our earlier shows will suffer in consequence.

There have been considerable changes amongst our exhibitors. In a paper I wrote some time ago, I said the great difficulty with regard to exhibitions seemed to me amongst the largest exhibitors in the amateur section, namely the withdrawal of so many. We know how several in this division have during the last few years withdrawn. I need only mention the names of Baker, Jowett, Hall, and Whitwell, to show how true this is, and now two more have passed away in the persons of Dr. Budd of Bath, and Mr. Haywood of Reigate; and I know but of two or three who will be found probably entering the lists this year in that division. Of course, this is a matter for regret not only for the show itself, but also for the exhibitors themselves, for it is dull work when the race runs between two, or at the most three. It needs the spur of competition to give zest to the struggle, for it is not with Rose exhibitors as it used to be said (whether correctly or incorrectly I do not vouch for), as at a certain regatta with which I was acquainted, and where the contest was for rowing-boats, that the crews used to make arrangements as to the place which their respective boats were to occupy at the close of the race; so that while the spectators fondly imagined that these crews were doing their best to outstrip one another, they were really only keeping the places which they had arranged they should each occupy. Of course, the



FIG. 102.—A LARGE CEDAR OF LEBANON AT WESTFELTON, SHROPSHIRE.

in a state of growth. This was especially the case with Teas, many of which, with their brilliant-tinted foliage were full of young shoots and even incipient buds; and when to this mild weather succeeded some sharp touches of frost in December, these young shoots were cut back, and the prospect of an early bloom was all overthrown. This did not hold so much with the hybrid perpetuals, as they do not grow on so late in the autumn as the Teas. It is, moreover, a somewhat curious fact that the complaints of the damage done to Tea Roses come more from the west of England than the east. We have always been in the habit of associating mildness with the western and south-western counties, and have always thought that it was more easy to grow Tea Roses there than in the east. This mildness is generally associated with damp, and when both of these are present, and frost comes, it is natural that the Roses should suffer; and hence it comes to pass that Tea Roses do so much better in an elevation some 300 ft. or 400 ft. above sea-level than when they are exposed to the damp which arises in sheltered positions and low-lying grounds. Thus, I have never seen Tea Roses more flourishing than those grown by the Rev. F. R. Burnside at Birch Vicarage, in Herefordshire. And now let us

same does not hold good with trade exhibitors if the firm be a good one; the death of the proprietor only makes a change in the *personnel*, but does not affect the position of the firm, and the old saying may be applied to them—"Le Roi est mort, vive le Roi." It becomes questionable then whether it might not be desirable to lessen the number of flowers required to be exhibited in the higher classes of amateurs. It is said that, if this were done, there would be no tail in the boxes; that is,

we must always recollect that a garden Rose is not necessarily one which from its inferiority in some form, cannot be recognised as an exhibition variety. *Wild Rose.*

THE LUCOMBE OAK

Is a natural hybrid originally, discovered by Mr. Lucombe, between *Q. suber*, the Cork Oak, and *Q. arvensis*, the Turkey Oak. Its history is well known,

variable, so much so that it is difficult to separate the Lucombe from the Fulham varieties. A magnificent specimen used to form one of the attractions of Osborne's nursery, but the builder has long since replaced it and other treasures by long lines of unlovely "villas."

MARKET GARDENING.

IVY-LEAVED PELARGONIUMS.

AMONG the number of new varieties there is nothing that supersedes the favourite "*Madame Crousse*," which has been grown for market for a number of years. It may be grown as a dwarf bushy plant, in which state when well flowered it makes a fine plant for decorations. Large quantities of plants are also used for window-boxes, and as a bedding plant it is a general favourite. Of those which have found favour more recently, "*Galilee*" does not spread so much as *Madame Crousse*, but it makes a fine pot plant, producing its bright rosy-pink blossoms in great profusion. I may add that this is one of the older varieties, which has only recently been recognised as a useful market plant. *Ryecroft Surprise* is another useful variety, but this is not quite so free as a spring plant, but may be regarded as one of the most useful autumn flowering varieties. There are few plants which better repay for a little extra care in their culture. In their proper season, well grown plants always find a ready sale at good prices; the period when they are most in demand being from Easter until the end of June.

To make good plants for 48 (5-inch) pots, the cuttings should be put in early in the autumn. The best method of securing good stock is to plant out in a dry exposed position, giving plenty of room. Short jointed cuttings with firm wood are the best; the cuttings may be rooted in the open, or in a cold frame. Potted singly in September and during the winter, they should be kept fairly dry. A little fire-heat may be necessary, but plenty of light and air are more important. They may be stopped once or twice, and should be ready for their flowering-pots early in January. The potting compost should not be too rich, and may be pressed firmly. If the plants have been kept short and sturdy, they will not require sticks until after they are potted into their flowering-pots; but this should be done before the plants begin to fall over, using 2 feet long sticks. After the first flower-trusses are well advanced, liquid-manure may be freely afforded to the plants, and if the weather be dry and warm, the syringe may be used daily until the first flowers begin to open.

Green-fly is often very troublesome, and if allowed to get well established, it will be found difficult to eradicate, as the leaves curl up and protect them from the effects of fumigation. On the first appearance, or even before any fly can be seen, it will be advisable to fumigate periodically; or if the fly gets a start when it is too windy for fumigating, the plants should be "dipped" in an insecticide. Of white-flowering varieties, "*Kate Wilson*" is the best, and is most useful as a basket plant. *A. Hemsley.*

BRITISH FORESTRY.

(Continued from p. 308.)

V.—CONVERSION OF COPPICE WOODS INTO HIGH FORESTS.

THERE was a time, when coppice woods yielded such high returns, that this method of treatment was doubtless the most profitable which could be adopted. Now, however, matters have changed. Oak bark has fallen in value to such an extent, that the surplus of the sale value over the cost of peeling and preparing the bark has become very small. Not long ago I had to do with an extensive area of Oak coppice woods in the south of England, which gave of late years, after deducting the cost of cutting, peeling, &c., an income of



FIG. 103.—A LUCOMBE OAK AS GROWN IN THE EXETER NURSERY, EXETER.

no flowers not up to the standard of the best of the box, and that we should get a larger number of exhibitors who now feel themselves hopelessly shut out by the growers of larger numbers. I am not at all sure that this is the case, and indeed I have known several instances where an exhibitor who grew a much smaller number of plants was able not only to hold his own, but to beat those who had a much larger number.

With regard to garden Roses, I think we may look forward with some degree of interest. There are some Roses which seem to promise a break in classes, not hitherto recognised amongst us; but

and was first given to the public in the *Philosophical Transactions* in 1772. It was raised from an acorn of *Q. cetrifolia*, which was in juxtaposition to one of *Q. suber*. Mr. Lucombe grew it for several years, and at length had it cut down for the purpose of having his coffin made of it; but his life was so long continued that he had another and larger tree cut down, and kept the planks under his bed, till at length, in his 101st year, he died. Our illustration (fig. 103) shows one of the Lucombe Oaks growing till lately in the Exeter Nurseries. A full account of the tree is given in Loudon's *Arboretum*, iv., 1853. The foliage is nearly evergreen and very

about four shillings an acre annually. Taking into consideration the cost of administration, rates, taxes, &c., these lands give practically no income at all. Nor is Oak bark likely to rise again in price. There is not only an ever increasing import of foreign tanning materials, but it is almost certain that before long, tanning will be done chiefly with artificially prepared agents. Hence, one group of coppice woods is financially lost. Matters are only little better as regards other coppice woods. Where Ash can be grown, fair financial results may still be obtained, and in certain localities Hazel sells as yet; but taking coppice woods as a whole, their value has fallen so much, that the time has arrived to consider their position in rural economy. In some cases, as in game preserves, coppice in combination with standards may still be indicated, but in all other cases, coppice woods should be converted into high forests, whenever the proprietor looks forward to the realisation of reasonable returns from his woodlands.

When conversion has been decided on, the simplest plan is to carry it through step by step as the coppice in each section of the wood reaches the most profitable age. As soon as the coppice has been cut, it should be interplanted with suitable timber trees; the plants being placed between the stools. They will grow up with the fresh stool-shoots, the latter providing shelter to the soil, and driving the seedling plants up. As the shoots are likely to grow at first quicker than the seedling plants, the area must be gone over repeatedly, and the plants freed from interfering stool-shoots. During these operations, only so much of the shoots should be cut away as is absolutely necessary for the benefit of the plants, the rest being left to protect the soil. Subsequently, one of two plans may be followed: if the height-growth of the seedling plants is sufficiently rapid to outstrip the coppice shoots after some time, the two may be allowed to grow on together. If, on the other hand, the coppice outstrips the seedling trees for a lengthened period of time, then it may be cut over once more, and the subsequent shoots will assume the shape of an underwood, until the seedling trees finally close up overhead, and kill out the underwood.

The question, what trees to plant, is of the first importance. The selection depends, as in all such cases, on the special conditions of each locality; but the following remarks may prove useful. In the majority of cases, fast-growing species are indicated, such as Larch, Ash, Douglas Fir, and various Pines, say, Scotch, Corsican, and Weymouth. The first three should be planted only on fairly good soil, and in otherwise suitable localities. Larch, particularly, should not be planted if the disease is prevalent in the locality, and under any circumstances only on cool aspects. Ash requires a sufficient quantity of moisture in the soil, while Douglas Fir is partial to sheltered positions. In warm localities and on indifferent soils the three Pines are indicated. As regards Oak, Sycamore, and similar timber trees, I should only recommend them in the case of really fertile lands, and then the stool shoots must be periodically reduced in size and height, until especially the Oak can hold its own against them.

When interplanting coppice woods, it is essential that the plants should be given the best possible chance of holding their own against the stool shoots, hence vigorous plants with a well-developed natural root system should be chosen, and they should be placed into pits. None of that barbarous system called notching, under which the roots are all pushed to one side.

I desire on this occasion to invite some attention to the Douglas Fir. Some years ago I gave in the *Gardeners' Chronicle* (November 10, 1888, and following numbers), a lengthy account of the cultivation of this species in Scotland. A fortnight ago I saw in Gloucestershire a wood about thirty years old, planted on a steep northern slope, which had between 5000 and 6000 cubic feet of timber to

the acre. Such a result is so inviting, considering the value of the timber, that the extended cultivation of Douglas Fir in suitable localities cannot be too strongly recommended. But let it be remembered, it requires fairly fertile soil, and a certain amount of shelter against strong winds. That shelter it will generally receive when planted into coppice in cool aspects; hence this tree deserves special attention in the conversion of coppice-woods into high forest.

In conclusion a few words about Silver Fir and Spruce. In many cases these species may be planted into coppice woods. They stand much shade, especially the Silver Fir, and when they have once commenced to go ahead, they will speedily overtop the coppice shoots. I have myself, since 1894, planted Spruce into coppice, on an area of 1,700 acres, so far with complete success. I have found the cost of going over the areas, to help the Spruce against the coppice shoots, very small, and in the older plantations, now seven years old, the Spruce does not require any further help. The value of Spruce timber in Britain is at present small, but if the trees are grown in fully stocked woods, it will produce timber of a higher quality, because the annual rings will be narrower, and the stems free of branches to a good height. As to quantity, Spruce is a good producer; on soil of fair quality 100 cubic feet, according to quarter-girth measurement, per acre and year may safely be relied on. I have myself a Spruce-wood now forty years old, situated on a rather steep south-eastern slope, the under-lying rock being clay-slate, at an elevation of 1,100 feet above the sea, which has produced 127 cubic feet, quarter-girth measurement, per acre a year. Such woods will pay a fair rate of interest on the capital invested in them, apart from any rise in the price of timber in the future. *W. Schlich, Cooper's Hill, May 12, 1900.*

BULBOUS IRISES.

(Continued from p. 308.)

I. Fosteriana.—This small-flowered species, native of Afghanistan, is apparently confined to botanic gardens, or gardens where bulbs are made a specialty. It has slender leaves, a stem a foot or so high, bearing one small yellow flower, with spatulate, conspicuous, purplish standards, disposed horizontally. I have not had the plant under cultivation, nor have I heard of bulbs being offered for sale. A far better plant, with golden-yellow flowers, may be found in—

I. orchoides, a new species, with the leaves of *I. alata*. It produces a stem above a foot high, bearing several bright yellow flowers from 2½ to 3 inches across; each flower proceeds from a boat-shaped bract or sheath, which clasps the stem. The falls of the flowers are bright yellow on the type, with a blotch of purple on each side of the crest, which runs down the claw. It is a valuable addition to our list of Irires of horticultural merit, being quite hardy; flowering with *I. caucasica* in March. At present, the prices for bulbs of flowering size run far too high to allow of extensive planting. It comes from Turkestan.

I. orchoides cerulea, flowers lilac with a bright yellow blotch in the centre of the blade of the fall. It is quite as hardy as the type, and will flourish in any well-drained soil. From a garden point of view, the type is the more useful, the colour being more decided and bright.

I. rosenbachiana, a rare and handsome species, producing three sessile flowers of large size, white in colour, flushed with lilac and marked with purple on the falls. The styles are erect, not deeply cleft, or serrated on the margins; the standards being spatulate and drooping. The colour forms of this plant are numerous. The falls are white at the top, red-purple in the middle, creamy white at the base, with reddish-purple veins. It flowers in March, before much leaf-growth is made, and is quite hardy at the foot of a

warm wall or on the rockery. It should be sheltered from the east wind when in bloom. Being a comparatively recent introduction, and somewhat high-priced, it is not common in gardens.

I. sindjarensis is a strong-growing plant from Mesopotamia, with broader leaves than any in this group. It produces three pale slaty-lilac flowers, with radiating lines of darker lilac and minute spots on the falls. A figure without spots occurs in the *Botanical Magazine*, 7145. Though hardy, it is not often seen in gardens, the flowers being less showy than many others. It flowers in March.

The wide range of colour embraced by this group of Iris, and the great variation of given species contained in it, as well as the truly artistic forms of the flowers, afford a grand scope for the cross-breeder, and impetus to the raiser of these charming plants from seeds. In almost every case, seedlings from good garden types, whether resulting from artificial crossings or not, give a high percentage of good forms. These Irires, and undoubtedly many other small bulbs, suffer a good deal during transit to this country; and, moreover, may have flowered several years before they were collected or sold, and would necessarily be short-lived compared with home-grown plants. Having had some experience in raising most kinds of bulbous plants from seeds, I am able to state that in almost every case they have given far less trouble, once past the seedling stage, than imported bulbs, with the exception of Hyacinths and a few other Dutch bulbs.

I. persica.—A well known and fairly common plant in gardens. The leaves are longer and narrower than those of *Iris alata*, but otherwise they resemble them. The stem is short, one-headed, colour pale lilac, 3 inches across, marked with falls with a dark purple blotch at the top, an orange keel, and purple lines and spots. The falls average an inch in width at the middle, and enclose the styles for a part of their length, forming a tube. The flowers on different plants are variously marked, some having a ground colour of white, green, and lavender, mixed; others, such as the *I. p. var. purpurea*, has violet-purple perianth segments. Fortunately, imported batches of this plant are mostly rich in good, well coloured examples. The plants are short-lived under cultivation. *G. B. Mallett.*

(To be continued.)

FUNGIOUS DISEASE IN YOUNG CUCUMBER PLANTS.

I NOTICE at p. 275 that Dr. William G. Smith in reporting on the above failing in young Cucumber plants considers "ventilation" to be a chief means of preventing or possibly warding off the attacks. It is an unseen foe, and as such it is very difficult to combat. The only object I have in sending this contribution on the subject is to throw light upon a subject which needs fuller investigation. I do not know if the circumstances surrounding the attacks of the malady are uniform, but I think a most important link in the chain of evidence is missing in the somewhat sparse letter sent by your Cardiff correspondent, who appears to have given no idea of the temperature the affected plants had been grown in. This, I think, is most important; it is especially important in so far as the disease has affected the plants here this year. I think also that a statement should be made as to the age when a plant appears to be generally immune from the attack. This I can give as regards my own plants and circumstances. In assuming ventilation to be the main preventive, Dr. Smith is confronted with the fact that some growers never ventilate Cucumber-houses at all. I am not one of these, but the knowledge of this fact and other evidence I possess compels me to say that temperature as a disposing cause of the disease is more important than ventilation. In my own case the attack occurs always at night, or at least that is the time of the failure of the plants; and a plant may be smitten

only slightly, destroying one side only, or being struck with more than one germ or spore, becomes encompassed and perishes quickly. I do not know whether enclosing the plants in a small box is the best means of arriving at a correct or definite answer, seeing the plants are attacked in a more or less spacious and heated house, and in the Cardiff case, receiving ample air about them by the very distance separating the plants in the house. I believe, too, that Dr. Smith would arrive at a different conclusion, were it possible for him to examine the plants in the conditions under which they are grown. I say this in the belief that fungus germs of quite a different order may be generated in low temperatures, from those generated in a higher temperature; also that with lower temperatures, the germs or spores settle upon some object, and germinate because of the increased moisture that accompanies such lowering, as also the nearness to the earth. In the very dry spring

were transferred to a wooden stage placed at 18 inches from the ground, two rows of 4 inch piping being about a yard away on either side. Staked and set out, the whole lot of plants formed a picture of perfect health, and so they remained for several days.

The change took place in April last in quite warm weather. But the change to colder weather was soon noticeable in the plants, that is in three or four days, during which time we had frosty nights and very cold days. I lost upwards of a dozen of these fine plants out of one batch, all being similarly affected at the collar. But the strangest fact is that, of those plants which were raised in boxes placed over the hot-water pipes, and which all along were the cooler, though transferred to the same stage as the others, and in some instances mixed with them, not a plant was lost, or infected with the disease. This, I consider, to be due, in the main, to the trifling difference in the places in

SPORT IN A PANSY.

THE specimen at fig. 104 occurred in the garden of John Hester, Esq., of Oxford, and was sent us by Mr. J. E. Jeffries. The blood of the Pansies is not a little mixed, and we suspect an unmixed and re-arrangement of colours have taken place in this particular plant; but how or why passes the wit of man at present to understand. One of the flowers shown is a purple self colour, and the other yellow with purple markings.

PRIMROSES AND THEIR ALLIES.*

THE genus *Primula* consists of about 220 species known to botanists, about sixty of which are considered to be either natural hybrids or well-marked varieties, this is exclusive of synonyms, which are very numerous, perhaps more so than in any other genus. Botanists seem to have vied with each other in renaming the same plant over and over again, until we have a dozen or more different names for many of the same species, and altogether some 300 synonyms are known.

Primulas are widely distributed throughout the globe, but roughly speaking about a third of the whole number are natives of the Himalayas, a third natives of China and Japan, and the remainder natives of Europe, Northern Asia, and America. Not more than 120 species, including natural hybrids, are in cultivation at present, and of these about three dozen only have become at all popular or commonly cultivated in gardens. Of the large number of known species, there is hardly a single one that can be termed "weedy," or unworthy of the greatest care that can be bestowed in its cultivation.

Five species only are natives of Britain, they are, however, not the least beautiful members of this charming family. They are *Primula vulgaris*, the Primrose; *P. officinalis*, the Cowslip; *P. elatior*, the Oxlip; *P. farinosa*, the Bird's-eye Primrose; and *P. scotica*, the Scottish Bird's-eye Primrose. We shall begin with our own natives first.

Primula vulgaris, the common Primrose of our woods and meadows, one of the loveliest of British plants, varies a good deal in colour in some places, hues of red, white, purple, besides yellow, are occasionally found. Similar forms have been grown in gardens for more than 400 years, and are amongst the very earliest plants to be taken in hand by the florist. Gerard, who wrote his *Herbal* in 1597, figures and describes, in his own quaint way, the common single yellow, single green and double white Primroses; and Parkinson, in his *Paradisus Terrestris*, written in 1629, figures and describes the single white, single green, double green, and two kinds of double yellow Primroses, as having been grown in gardens at that time. By a long course of selection from seed, the varieties we now possess are very numerous, and are so readily obtained from any good strain of seed, that it is scarcely worth while to trouble with named kinds. We have now every shade of colour represented in the Primrose, the latest of all to be evolved being the blue Primrose, which made its appearance a few years ago, and for which all plant-lovers are indebted to the persevering efforts of Mr. G. F. Wilson of Weybridge in obtaining it, and thus enriching our gardens. A few of the most distinct single varieties have received names, which must be propagated by division; among these may be mentioned *Auriculæflora*, *Amaranth*, *Rosy Morn*, *King of Crimson*, *Queen of Violets*, *Fairy Queen*, &c. The double-flowering kinds are slower-growing, and more delicate than the single ones, and require more care bestowed on them. The development of healthy foliage after flowering should be the object of those who wish to succeed with them. The best known of the double kinds are *Blush Crimson*, or *Madame*

* Lecture delivered at a meeting of the Royal Caledonian Horticultural Society, on May 2, by Mr. R. Lindsay, Kilmes Lodge, Murrayfield, Midlothian.



FIG. 104.—A SPORT IN A PANSY.

of two years ago, I lost the greatest number I have ever lost; all in the young state however, that is to say, plants from a month to six weeks old. This spring I have lost but very few, and these under such clear circumstances that I attribute the change of temperature to be the chief cause. I have but a very limited amount of bottom heat, therefore it happens that a make shift plan is made to answer as next best. I raise my young plants in batches of a hundred or so, one small frame over a bricks bottom heat taking about 120 pots. This frame used for successive batches has, generally in the past, served my purpose, but this year it has not. This compelled me to make a second sowing, one lot going to the bottom heat, the other being made in boxes of 9 inches in depth, that were placed over two flow-pipes 4 inches in diameter, the boxes being covered with sheets of glass. The former germinated twenty-four hours earlier than the other, and made a corresponding progress, when it shortly became necessary to thin out, and stake the plants. Up to this point not a plant was lost, and the stems were sound and from 7 to 8 inches to the cotyledons. From the bottom-heat frame they

which they were raised to those to which they were transferred. All the plants were sown in the same kind of soil, and all were raised singly in 3-inch pots. Those that failed, did not all fail at once, but were spread over about one week. All of my losses, or the major part of them, always occur in April or the preceding month. Planted out all my Cucumber plants are grown on the ground floor on beds of mother earth, over which a layer of manure is placed, no bottom heat being afforded. Judging by my experience this year of these two batches, I deduce the following facts for my future guidance, more particularly where the houses in which they are planted out, are not well heated. These are to raise the plants as hardily as practicable from the start, and to avoid the use of bottom heat. Cucumber plants raised without bottom heat may require more time and a drier condition of the soil for a while, but such plants by reason of the firmness of the stems, seem to enjoy perfect immunity from this fungus pest. In my case such plants were in company with some 200 or 300 others, the majority touching on all sides, and were yet unaffected. E. Jenkins, Hampton Hill.

de Pompadour, Cloth of Gold, Crimson Purple, Croussei, Giant Yellow, Lilac, Platypetala, Purple, Rose, Scotch Red, Sulphur, and White.

In the doubles, the deeper the hue the less robust the plant is, as a rule. The rich crimson and the deep purple kinds are usually difficult to cultivate, but where the climate is at all moist and temperate they grow almost with luxuriance. The white, lilac, and sulphur kinds are much easier grown. The more rich and moist the soil the better they will grow, but shelter and partial shade are also necessary conditions to their successful culture. The double kinds produce fewer off-sets than the single-flowering kinds, but it is by these alone that the stock can be increased.

Primula officinalis.—The Cowslip, or Paigle, has not been cultivated to any great extent in gardens, although many curious and beautiful varieties are known; nor has the true Oxlip, *P. elatior* of Jacquin, ever been much grown in gardens. But a near relative, the common Oxlip, which is a hybrid between the Primrose and Cowslip, is no doubt the plant from which the garden Polyanthus has been derived. This has been held in the highest estimation by florists. Now-a-days the Polyanthus is not at all sufficiently appreciated, considering the wonderful array of beauty they present; but at one time it was very highly esteemed as a florist's flower, and none better deserved the attention and regard of florists. They are divided by florists into two main classes, viz., the gold-laced and the fancy varieties. The fine named gold-laced varieties were much more numerous some thirty or forty years ago than they are now. They are generally of somewhat delicate constitution, and from the fact that they can only be increased by division of the side-growths thrown up during spring and summer are apt to become lost. Gold-laced varieties are again divided by florists into black grounds, in which the body colour is of a dark, rich crimson, resembling velvet, quite free from spot or blemish of any kind; and red grounds, in which the body colour is of a dark, velvety-red, but perfectly clear and unshaded. A few of the best of the *Black grounds* are:—Cheshire Favourite, Exile, Formosa, John Bright, Lancashire Hero, Prince Regent. *Red grounds*—George IV., Lancer, President, Sir Sydney Smith, Sunrise, William IV.

The Polyanthus is grown to the greatest perfection in pots, in a cold frame in an airy situation, yet sheltered from the rays of the sun. They should be repotted once a year, and the best time to do this is immediately after flowering. In favourable situations they may be planted out in a cool shady border for the summer, and repot in autumn. A good compost for their culture in pots is made up of the following ingredients:—One part light yellow loam, one part well decomposed cow or horse-dung, one part leaf-mould, and one part sand.

The Fancy or Giant Polyanthus are a very vigorous-growing, fine, and showy race; they have large, stout flowers of various hues of colour, from pure white and yellow to deep purple and crimson. Some of the finest varieties have been selected and named, but they are much more generally grown for the decoration of the flower-garden, and are very effective in beds and in the open border. A few good named sorts of Fancy Polyanthus are Buttercup, Golden Bedder, Grandis, Grenadier, Harbinger, and Sovereign.

A very interesting section of fancy Polyanthus is that known as the semi-duplex or Hose-in-Hose varieties, in which the calyx is transformed into a perfect pip, and so they are two-flowered, one pip issuing from the other. There are many beautiful named varieties still in cultivation, such as Cloth of Gold, Crimson Beauty, Faust, Lord Wolsley, Scarlet Gem, and Prince of Orange. There is also to be found in old-fashioned gardens several types bearing the names of Jackanapes, Jack-in-the-Green, Galligaskin, Pantaloon, &c. These are characterised by large green calyxes, and curiously marked flowers; they are very interesting botanically. There is also what is known as the Blue

Polyanthus, a somewhat delicate grower, with pale slaty-blue flowers. Then there is what has been called for convenience the hybrid or Primrose Polyanthus; they form an intermediate group, as they first of all send up flowers singly like the common Primrose, and these are followed later by Polyanthus stems and trusses. They are generally early to flower, and very continuous also.

(To be continued.)

PLANT NOTES.

MECONOPSIS HETEROPHYLLA.

THIS fine Californian annual, for seed of which I am indebted to Kew, seems to me much the most interesting annual plant which has come to us for a long time. The individual flowers, of which a large number are displayed at the same time, measure about an inch and a half across. They are of an exceedingly beautiful shade of coppery-orange, passing at the centre into crimson and black. The colours are most unusual, and as the flowers are borne well above the foliage, they catch the eye at once. My plants in the open stand about 1 foot high, but under glass they are nearer 2 feet. Unlike the majority of the Poppy family, the petals are not fugacious. I have worn a two-day-old flower in my button-hole (of course, with a flower-glass) all day, and found it in the evening quite unchanged. To complete its attractions, it has a most refined and delicious scent. This scent will convey different suggestions to different people. To me it at once recalls Lily of the Valley; and if any one will boldly plunge his or her nose into the pollen of the anthers, he or she will be able to walk a considerable distance breathing this delicious fragrance all the time. I understand that at Kew it ripened plenty of good seed, so it should shortly find its way to the seedsmen for distribution. *A. K. B., Neston, Cheshire.*

ALPINE GARDEN.

ALLIUM ZEBDANENSE.

THE Alliums are not, as a rule, plants for the many; though there are a number of pretty plants comprised in the genus. Their odour, or that of the majority of them, is unpleasant, but, with some, one feels disposed to feel lenient towards this fault on account of the good points they present at the same time. Another drawback of many of the Alliums is their remarkably prolific nature. Much as I dislike their odour, I fully appreciate the beauty of some, and from time to time I have grown a good number of them. Last autumn saw offered as a novelty a white-flowered species named *A. zebdanense*, which seems to have been described in *Boissier & Noe, Diagn., Series II., iv., 113.* [See Boissier, *Flora Orientalis*, v. (1884), p. 272. Ed.] I have not, however, access to that work; but from the source whence the plant came, one thinks it is probably correctly named. It has now come into flower in the rock-garden, where its tall stem, surmounted by its umbel of white flowers is visible for some distance. Its umbels of flowers are loose and yet compact, and they are supported on stems which, though thin, are sturdy enough to keep the flowers upright. It has attained here a height of 20 inches. The flowers are white, and are free from markings; and they are produced in succession, and as this is written, there are several unexpanded buds though the earlier blooms are nearly past. *Allium zebdanense* has narrow, channelled, somewhat twisted leaves; it is probably hardy here, as last winter was a somewhat trying one, and it remained without protection throughout. It came into bloom early in May. It is a native of Syria and Armenia. *S. Arnott, Carsethorn-by-Dumfries, N.B.*

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen, S.W.

Cymbidium eburneum.—This Orchid comes from the Khasia Hills, where it grows at an altitude of between 5,000 and 6,000 ft., and where the rainfall is very heavy during its season of growth. Suitable conditions under cultivation can be obtained in the Masdevallia-house. The plants are commencing to grow, having rested after flowering, and repotting, if necessary, may be performed. It is a plant that resents disturbance at the root, so that when a plant has a fair amount of root-space, and is in good health, a renewal of the surface-materials will suffice for one season. The thick and fleshy roots are few in number and easily damaged, and much care is needed when picking away the worn-out compost. The compost should consist of a mixture of two parts peat, one part of turfy loam, some chopped sphagnum-moss, and a large quantity of small crocks. The pots, which should not be over large, may be furnished to one-quarter their depth with clean crocks, over which a layer of rough moss, and then the plant. The compost should be carefully placed amongst the roots nearly to the rim. Let a good quantity of water then be afforded, and until the roots penetrate the compost only sufficient should be afforded as will keep the latter in a moist state, but damping the pots, plants, and surroundings with the syringe in bright or dry weather.

Cymbidium Mastersii is a species that thrives under similar conditions, and it may now be repotted or surfaced. The plant gets leggy as it ages, and a good portion of the old base may be removed, and the rest of the bare stem buried deeply in the compost, when new roots will shortly develop along it.

Cymbidium hybrids.—These are rare, and so far as I am aware, only two are in existence, viz., *C. eburneo-Lowianum*, and the reverse cross. This is a magnificent hybrid of splendid constitution; it should be grown in rather large, well-drained pots, in a compost consisting of one part peat, one of turfy-loam, and one part chopped sphagnum-moss, a little dried, pulverised cow-dung, and finely-broken crocks. Sufficient space should always be left for holding water. The aerial conditions may be such as are suitable for *C. eburneum*, but with more sunlight and a higher day temperature. *C. Winnianum*, having for its parents *C. Mastersii* and *C. giganteum*, makes less rapid progress than *C. eburneo-Lowianum*, and it should not be grown in such large pots, the roots not being so numerous; otherwise the same kind of treatment may be adopted.

Heating and Temperature.—The prevailing cold, drying winds of the past week have made it a difficult matter to afford the proper temperature in the various houses without having to use much undesirable fire-heat; but the bright sunshine has often mitigated this evil in some degree. Ventilation has been restricted to the use of the leeward ventilators, or not any has been afforded in certain houses. As an excessive amount of fire-heat and lessened ventilation is apt to create too much humidity through frequent damping down that becomes a necessity, the most prudent course is to afford enough heat in the pipes as will give the house that genial sensation which all know who have to do with plant growing, and although the standard degree of warmth may not be reached, less harm will result than from excessive fire-heat and moisture.

Fumigation.—Insect pests multiply so rapidly at this season that every available means has to be called into requisition to destroy them. Frequently sponge the leaves of plants known to be subject to the attacks of red-spider and scale. Thrips at one time were the bane of an Orchid-grower's life, but now, thanks to the "XL All Vaporiser," injury of a serious nature is a thing of the past. Excepting in a few unimportant instances, Orchid-blooms are uninjured by the fumes of this compound, providing the right conditions prevail at the time. If there are no blooms, damping, &c., may be done as usual; but if flowers are present, a dry atmosphere is essential. When possible, select a dull, quiet evening for the operation, and before beginning to fumigate lower the blinds. A mild fumigation in the evening, and again in the morning, is the best policy—taking care to shade the houses for a longer period for a few days afterwards.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Tomatos.—Plants which have been gradually hardened off will now be transplanted in the open, or the pots may be plunged in soil against a warm wall. The latter method is preferable, as the roots being more confined the plants will not make gross growth, but they will need to be transferred to pots of larger size before being placed in the open. If the walls are covered with fruit-trees, a few small fences may be put up in a sunny position, or some strong stakes driven firmly into the ground and rather closely together. Tie securely the main stem of the plant to one of these, and the side branches may be trained and fastened to others. The fruit will then be well exposed to the sun, and more easily ripened.

Salads.—A regular supply of Lettuce may be obtained by sowing seed now, and making additional sowings every three weeks. If a piece of deep ground is now vacant, it will be as well to reserve this for Lettuce; or the unoccupied Celery-ridges may be used for the purpose. Of the Cos section, Carter's Giant White and Sutton's Mammoth White are good; while Continuity and Lorthois are two of the best Cabbage varieties, and are less apt than some varieties to run to seed. A supply of Radishes may also be obtained through the hotter months by sowing seed in a cool and shaded position, a northern aspect perhaps being best. The Turnip-rooted varieties are not so good for the purpose as those of the ordinary type, for the reason that they are more easily injured by drought. In any case, however, all sorts of Radishes require to be frequently afforded water, and this should be done in the evening. In very dry weather cover freshly-sown Radish-seeds with a damp mat until they have germinated. Endive and other small salads, such as Mustard and Cress, may, if required, be sown under a north wall.

Parsnips sown in March will now require their first thinning. This should not be done severely, in case the fly should make an appearance, and necessitate affected plants being pulled later on. A little bone-meal may be sprinkled over the ground previous to hoeing between the plants.

Early Celery.—If seeds were sown in the March and April Calendars, the plants having been gradually hardened-off, will be ready for transplanting in a somewhat sheltered part of the garden. Well water the plants before removing them, and if possible, choose a showery or dull day for planting. The bottom of the trenches should also be given the final trampling, as if the soil is left at all loose the plants will be apt to bolt. Where smokers are appearing round the base of the plants, remove them; and should the weather be dry at time of planting, afford water copiously from an open tank, to prevent flagging. Seedlings for the main crop should be pricked out in cold-frames, with as little delay as possible.

THE FLOWER GARDEN.

By J. BRISLOW, Gardener to the Earl of Ilchester, Abbotsbury Castle, Dorset.

Cultivation of *Richardia africana*.—These, if treated as I advised on p. 214, will now be hardened sufficiently to withstand the weather, and they may be planted in a sheltered pool, which, if the water can be lowered, may be readily done at a depth of 10 to 12 inches below the proper water-level. Let the plants when set out be secured to iron stakes, painted green. The water should be let into the pond immediately the plants are planted and made secure.

The Bog Garden.—The plants in this interesting part of a garden require careful examination from time to time in order to prevent snails and slugs, which abound in damp situations, injuring them. It is necessary to go with a hand-fork carefully over those plants which are making a renewal of growth, removing the decayed foliage and stems, and adding a few handfuls of finely-sifted peat. Where the hardy species of *Sarracenias* and *Droseras* exist, some of the water may be allowed to escape, and some sandy peat, together with a quantity of small stones or bits of rock used to keep the plants in their proper position; chopped sphagnum-moss may likewise be mixed with the moist earth and pressed in, which will grow and cover the surface. Small cages made of fine-meshed wire-netting are useful in preventing damage to the plants by voles and water-rats. The common and Harrison's Musk grow well in damp peaty soils, and may be planted, making, in the absence of sphagnum-moss, a good

substitute for it. At Abbotsbury the Musk is seldom killed in the winter.

Indian Azaleas Out of Doors, thrive under much the same conditions as the Camellia, and in order that the results of planting them out of doors may be good, a well-drained sunny situation should be found for them. The staple should be removed to the depth of about 2 feet, turfy-peat in layers the top side downwards being laid over the pipe or rubble drains; the rest of the space being filled in with peat broken up rather finely, leaf-soil, dry cow-dung, soot, and grit. The last three ingredients should be employed sparingly on making the bed, and be applied as an annual dressing in May, when flowering and growth cause a drain on the forces of the plants. If cow-manure be not available, bone-meal and soot are excellent substitutes, the latter being strewn by hand over the plants, which for convenience of covering in the winter season should be planted rather closely together, say 3 feet each way. The whole length and breadth of a bed devoted to Azaleas, can then be protected in the winter against rain and snow without much trouble. Those having plants under glass would do well to harden them off for a few days before planting them out, removing spent flowers and seed-vessels, laying the plants on their sides, and applying Gishurst's Compound-soap and water with a syringe in order to kill thrips. It is worth mentioning that Azaleas on their own roots thrive the best here, and they are propagated plentifully outside by layering the lower branches in sandy peat, which, after breaking up the ground under the bushes, is placed in small mounds. The rooted layers are severed the following May, and planted in trenches filled with peat. The best of Azaleas for out-of-door seeds are *A. indica alba*, *A. amena*, and the hybrids from them.

General Operations.—Strong plants of Pansies, Violas, Stocks, Asters, and other less tender plants, may be planted out in their permanent situations. Avoid trampling on the soil when it is sticky, unless wide and thin planks are used. Herbaceous plants, even if in pots, should not be planted out later than next week.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener to F. A. BEVAN, Esq., Trent Park, New Barnet.

Outdoor Vines have broken late this year, but the buds have now made so much growth that disbudding may be carried out. It is only in very favoured positions, and in the warmest part of the country, that out-of-door Vines produce nice ripe Grapes, and it is always advisable that the shoots should develop until those which will produce the finest bunches can be detected. Lateral shoots with bunches of Grapes must be pinched at the second leaf beyond the bunch. If Vines are grown for ornamental purposes only, all weak breaks should be rubbed off forthwith, and all others reduced to one or at the most to two on a spur. Avoid any overcrowding of the laterals. If these Vines are planted in dry positions, as is often the case, it is always necessary to afford water copiously now, and several times during the season of growth.

The Orchard.—Grafting having now been brought to a close, but little remains to be done in this department. If the grafts have been clayed, the clay must be moistened and all cracks filled by passing the hands round it. If grafting-wax instead of clay be used, there is no danger of it cracking or falling off—hence its superiority to clay for enclosing grafts. If the land is under the spade, a good hoeing will now be needed to kill weeds and loosen the surface. Apply water to newly-planted trees, not allowing the soil to get dry at the roots. In orchards under grass the latter should be kept from encroaching on the stems of young trees. If, where American-blight has been troublesome, means were taken in the winter to destroy it, a sharp examination of the affected trees should now be made, and any stray aphids killed with a strong solution of Killmright, or Gishurst's Compound-soap, applied with a brush. With regard to the larvae of different species of moth and sawflies on Apple-trees, nothing can be applied until the trees pass entirely out of flower.

Fruit Borders.—The dry weather, due to N.E. and E. winds, will have rendered the task of affording water to the Peach and Apricot-trees a necessity in light soils, and enough should be applied by hose or otherwise as will moisten the soil to a depth below the roots. My reason for touching upon this subject again, is that these fruit-trees do not generally receive as much moisture at the roots as they need.

Sweet Cherries, Plums, and Pears.—Espalier and wall trees will be in need of a certain amount of thinning, and stopping of shoots; taking the Cherries first. These fruits are apt to push forth strong shoots, which if left alone would soon impoverish the rest of the branches. It is wise to pinch such shoots at the third and fourth leaf, when they will form fruiting spurs. Let a likely-looking and well grown shoot be retained here and there for the purpose of replacing worn out branches. Let other shoots be left intact for the present, where required for extension, and rub out superfluous shoots. Plums require to be dealt with in much the same manner; forerights being pulled out if they can be dispensed with, as young growths issuing from the sides of branches are much the best for laying-in, making neater-looking trees, and securing more protection for the flowers. Trees which are making too much growth, may have the weak and badly-situated shoots removed. Pear-trees produce more spur-growths than are really required; and if these are thinned, instead of being stopped year after year, as is the general rule, improved crops of fruit would be obtained. One or two shoots on a spur are enough, and the others may be pulled out at the present time. Trees spur-pruned last autumn need to be treated in a similar manner; and where it can be done, the young growths left about equi-distant, that is, 9 inches apart, to form spurs. In doing this, foreright shoots should not be selected for spurs, but those that come on the top and bottom of the branches. The stopping of the growths on Pears and Plums should be deferred for the present, otherwise the buds will break back, and numbers of weak, watery shoots will be produced, and the main object of stopping, viz., the formation of fruiting-spurs, defeated.

Strawberries.—As these plants will soon be in flower, mulching may not be long delayed. According to present appearances the crop will be a heavy one; but unless rain comes in quantity at an early date, much labour will have to be expended in affording water to the beds.

PLANTS UNDER GLASS.

By T. EDWARDS, Foreman, Royal Plant Gardens, Frogmore.

General remarks.—As growth advances, thin out all plants that need it before they become crowded, and turn specimens round occasionally to keep them a good shape. Many plants, such as *Clivias*, *Begonias*, *Linums*, *Eupatoriums*, *Grevilleas*, *Centropogons*, *Eranthemums*, *Cyperus*, *Torenia*, *Plumbago rosea*, &c., which up to the present have required a considerable amount of heat, may be moved to heated pits, and gradually accustomed to more light. Syringe them, and shut up the house early in the afternoon with sun-heat. As pot Roses pass out of flower, they may be stood in a shaded position outside, and one sheltered from cold winds. Give careful attention to watering. Do not neglect them when flowering is over, or next year's growth will be weakly, and the flowers poor. The plants will need to be afforded water, and to be syringed just as they were when indoors. When they have been quite hardened off, plunge the pots in coal-ashes, in a position exposed to sunshine. These remarks apply to forced plants generally; but with regard to Lilacs, shrubby *Spiræas*, *Deutzias*, *Staphyleas*, &c., all planting-out should be completed as soon as possible, and if dry weather continue, water them well afterwards. For use in early forcing *Deutzia gracilis* is best grown in pots, and for the present these should be encouraged by feeding with manure-water, to complete growth in such structures as late Peach-houses, before placing them outside.

Conservatory and Greenhouse.—Remove all plants as they go out of flower, and re-arrange the groups, introducing as much variety into them as possible, and pick off faded flowers and leaves each morning. At the time of writing, the cold dry east winds and hot sunshine were very trying to plants in flower, but a light syringing at noon will counteract the arid atmosphere. Camellias planted out may be syringed morning and afternoon. Examine the borders, and if they are dry afford them a thorough soaking of water with the hose. The surface of borders may appear moist owing to syringing, while the roots may be dry, and if this be so the flower-buds will drop. Stake *Hydrangeas* and specimen *Fuchsias*, and stop the shoots of the latter, removing all flowers as they appear. Afford an increased supply of manure-water, and syringe thoroughly. Fire-heat may now be dispensed with.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

WEDNESDAY, MAY 30.—Somerset County Agricultural Association, Show.
Bata and West and Southern Counties, Show at Bath (5 days).

SALES.

THURSDAY, MAY 31.—Second Annual Unreserved Sale of Bedding and other Plants, Ferns, &c., at The Mile Ash Nurseries, Derby, by order of Mr. F. Lewis, by Frotheroe & Morris.

FRIDAY, JUNE 1.—Imported and Established Orchids, at Frotheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—67°.

ACTUAL TEMPERATURES:—

LONDON.—May 23 (6 P.M.): Max. 62°; Min. 50°.

May 24.—Dull—showery.

PROVINCES.—May 23 (6 P.M.): Max. 58°, N.E. England; Min., 46°, Shetland.

The Temple Show.

"FINE SHOW," the stereotyped expression, but it is nevertheless true. Some go so far as to say it is the best that has been held. That is a difficult matter to confirm or to refute; suffice it to say, it is very good, and those who have seen the Paris Exhibition going on at the same time, are very decided in their opinion as to the superiority of that at the Temple. In any case, the quality of the exhibits is very fine, and the arrangement is decidedly lighter and less crowded than usual. The out-door arrangement is specially good. Messrs. FISHER, SON & SIBRAY have a splendid group of ornamental deciduous shrubs. Messrs. CUTBUSH appropriately show the finest group of clipped Boxes, Yews, &c., that we have seen. It seems to us very childish, and in more than questionable taste, but if the public think otherwise, then the nurserymen have no option. In marked contrast with this is the long glazed tank, shown by M. LEOPOLD DE ROTHSCCHILD, in which Mr. HUDSON shows a number of MARILLAC'S Water Lilies in tubs sunk in a water-tank, and provided with moveable lights. This is the most remarkable feature of the show. Our illustration (fig. 105, p. 331) will give some idea of the arrangement, but supplies no idea of the beauty of the flowers. Messrs. RUSSELL of Richmond, Mr. JOHN

LAING, Messrs. CRIPPS, and Mr. FROMOW, show ornamental shrubs. We devote a special supplement to the contents of the tents, but an entire number would not suffice to enumerate the many beautiful groups. Necessarily there is a certain amount of monotony about these groups, but we are bound to say that some efforts have been made to obviate this sameness. The Orchids are as numerous as ever, and scarcely inferior as a whole to any that have been shown at any time. Messrs. W. PAUL & SON'S, and Mr. TURNER'S groups of Roses are as usual very fine, and more varied in arrangement than usual. Messrs. VEITCH'S group of mixed plants is very similar to the one they showed last year, so that our supplementary illustration, from a photograph, which was taken last year, and until now unused, is, so far as generalities are concerned, very similar to what is shown this year. We notice, however, this time in this group a magnificent flowering branch of *Embothrium coccineum*, presumably from Devonshire or Cornwall. Messrs. VEITCH'S *Streptocarpus* form a wonderful exhibit; and the same may be said of Messrs. BUNYARD'S Apples, Lord WANTAGE'S ornamental display of fruit, Messrs. CANNELL'S group of Cacti, Mr. JAMES'S *Calceolarias*, and of others which we allude to in our detailed report.

New plants in the old sense of the term are conspicuous by their absence, but new Orchids and new hybrids are plentiful. Groups of Ferns from Messrs. HILL & SON, MAY, BIRKENHEAD, and others; exquisite arrangements of Alpine plants by Messrs. BACKHOUSE, the GUILDFORD HARDY PLANT COMPANY, and others, contribute much to the beauty of the show.

On the first day the weather was showery, but nevertheless the attendance was good, and the QUEEN of SWEDEN was conducted round the show by the President. On the second day, also showery, the exhibition was visited by H.R.H. the PRINCE OF WALES.

BEFORE any irrevocable decision is come to, we beg leave to call special attention to the correspondence in our columns with regard to the formation of a new garden as a means of celebrating the Centenary of the Royal Horticultural Society.

Supposing the Limpsfield site to be aesthetically all that it is known to be, it is still more than two miles uphill from a railway station in a remote corner of Surrey, far away from the residence of nine-tenths of the Fellows. The site is charming, and the Society may now have means sufficient to buy it; but once bought, Chiswick will have to be dismantled, the new site—which is heavy "four-horse land" and partly water-logged pasture—will have to be drained and tilled, turned into a garden, and afterwards maintained at a cost relatively to the Society's income, that may well be deemed enormous. What a halter to put round the neck of the old Society when only a few years have elapsed since its release from similar bondage, and when its available funds at present are about seven or eight thousand pounds only! Does former experience count for nothing? Twice, we repeat, the Society has been on the verge of bankruptcy. Now it looks as if similar ruin might surely impend in a few years' time if this scheme is carried out. Dangers of the same kind, if not so great in degree, will attend the formation of

a new garden anywhere, or even the erection of a hall, which, if we may judge from our correspondence, is the most popular project, and hence we ask, is it absolutely necessary we should do either at this time? Are we to be turned out of Chiswick? The Council may have, we are bound to think it must have, some complete answer to this question, and be in possession of some as yet unrevealed plan whereby the financial dangers, attendant on these projects, may be averted. If so, we trust they will soon be made public. Instead of trusting to a vote, or to two votes, passed at as many meetings, neither of which can be considered fairly representative of the mind of the Fellows, because the Fellows have never yet been informed, except in very general terms, for what they were expected to vote, it would be very desirable if the Council would put forth at once a full detailed explanation of its proposals, together with the financial estimates of the supposed cost of carrying out their project.

The Centenary is four years ahead; the lease at Chiswick has still no fewer than twenty years to run! We need not trouble ourselves therefore about leaving Chiswick for the next fifteen years, but in the meantime we may do much to develop its resources and extend its usefulness. As an asset it is probably valueless; but if we are not mistaken, we can renew the lease on the same terms on paying an indemnity. That the environment is not so black as has been painted, is shown by the fine exhibit of *Vanda teres* from Gunnersbury, and the rich display of vegetables from Syon, shown on Tuesday, May 8, at the Drill Hall.

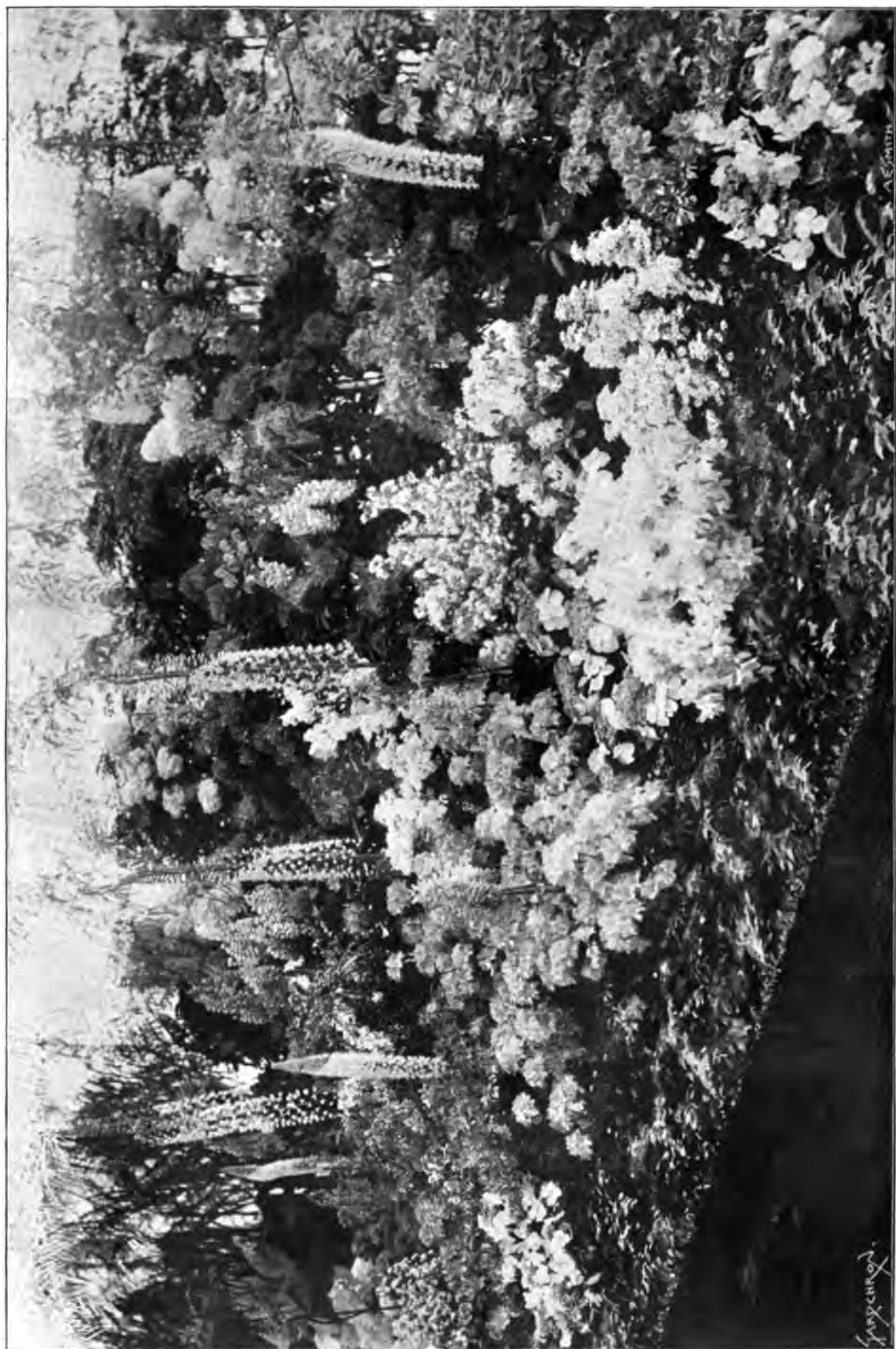
We have already mentioned several alternative plans, some of which would answer the purpose without any material risk.

The question relating to the bye-laws is simple. There is, with one or two exceptions, little to object to, and much to approve of. The Council has met the Fellows by giving time for their discussion, and we have no doubt that, possessing the best interests of the Society at heart, they will also take into consideration the wishes of the Fellows, and not permit the Society to incur such grave dangers as we have pointed out without the fullest explanations.

International Botanical Congress, Paris.

WE have received official details relating to the Botanical Congress to be held in Paris from Oct. 1 to 10 next. The subscription of 20 francs is to be devoted to the payment of the printing and publication of the Report, which will be sent free to all members of the Congress, whether absent from, or present at, the Congress. Subscriptions should be sent to M. HENRI HUA, Treasurer, Rue de Villersexel, 2, Paris. The committee requests suggestions as to the subjects to be treated of at the Congress, in addition to those already proposed. Excursions and visits to scientific establishments will be made. M. PRILLIUX is the President, and the members of the organising committee comprise a large number of the leading botanists of France. The subjects already proposed for discussion are:—

1. Species, races, forms, hybrids, and cross-breeds.
2. Adoption of a uniform, international standard for microscopical measurements.
3. Influence of the nature of the soil and of the plants growing upon it on the development of Fungi.
4. Comparative study of the flora of Madagascar.



A GROUP OF FLOWERING PLANTS, ARRANGED BY MESSRS. VEITCH & SONS.

5. Unification of the methods employed in the determination of Mucedines.

6. Comparative flora of Central Africa.

7. Water-bearing structures in the leaves of plants.

8. Establishment of a nomenclature for phytogeography.

9. Establishment of an international journal to appear periodically, and to contain lists of new names, so as to avoid as far as possible the multiplicity of synonyms.

10. Fungous flora of desert regions.

11. Systems of exchange between botanical museums.

12. Method of classification of botanical collections from a practical point of view.

13. Periodicity of botanical congresses.

14. Various monographic studies.

15. Method of "pure culture" for the lower Alga.

DODECATHEON.—We owe to Mr. GUMBLETON the opportunity of seeing two varieties of the twelve-god plant (dodeca-theon) which are of special beauty. *Le Géant* has loose clusters with pale lilac flowers; and *Mont Blanc*, with pure white flowers and deep purple eyes. They were obtained from M. THIÉBAUT.

HORTICULTURAL CLUB.—The meeting announced for June 5 is postponed, as the Secretary desires us to inform our readers, until June 19, in consequence of the former date falling on Whit Tuesday.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The committee have great gratification in announcing that H.R.H. the Prince of WALES has graciously consented to succeed the late Duke of WESTMINSTER as President of the Institution; and that H.R.H. the Princess of WALES, and their Royal Highnesses the Duke and Duchess of YORK have graciously consented to become Patrons.

HUNTLY, ABERDEENSHIRE.—On Saturday, the 19th inst., a lecture, entitled "Nature Knowledge," was given at the Gordon School Buildings, by Professor TRAIL of Aberdeen University, before the members of the Garioch branch of the Educational Institute of Scotland; Mr. TURNER, Drumblade, in the chair.

FLOWERS IN SEASON.—Messrs. STORRIE & STORRIE, Dundee, send us fine blooms of the Giant Yellow Border Auricula, which, it may be remembered, was given an Award of Merit by the Royal Horticultural Society two years ago, when it attracted attention on account of its robust habit, depth of colour, and particularly its fragrance, for the flowers are sweet-scented. The stock of this variety since its origin eighteen years ago, write Messrs. STORRIE, has been wintered in the open, and there has been during that time a natural process of elimination of the more weakly plants. At first, perhaps from 10 to 15 per cent. succumbed, but for the past five years not 2 per cent. have done so. It is now as hardy as an alpine, and suffers nothing from alternate freezing and thawing. With the yellow ones were also some flowers of various shades of buff and brown. These, we are told, are all seedlings from pure yellow mother-plants. "Year by year, however, the yellows are becoming more fixed in character, and the proportion of pure yellows is now nearly 70 per cent. At no period of their history has artificial pollination been practised, only careful selection of the finest varieties as seed-bearing parents." "Selection" has evidently given very satisfactory results in the case of these Auriculas.

HOOKE'S "ICONES PLANTARUM."—The May number, the second of the seventh volume of the fourth series, contains a number of illustrations, mostly of Chinese and Patagonian origin, and of purely botanical interest. *Lonicera calcarata*, of

Hemaley, is however noted as an exceedingly ornamental species of the genus, easily recognisable by the length of the spur projecting from the base of the corolla.

"CHRONIQUE HORTICOLE BI-HEBDOMAIRE."

—This newly issued journal is, so far as we know, the first horticultural journal published twice in a week. We hope the example will not be contagious! It claims also to be the only horticultural journal published at $\frac{1}{2}$ d. (5 centimes), but if that be the case now—why there were strong men before Agamemnon. We remember two such, but they have disappeared. The editor is M. LOUIS TILLIER, his office, 10, Boulevard Poissonnière, Paris, and we wish his venture every success. We seem to be late in offering our congratulations, but the rapidity with which the numbers appear on our desk give a wrong impression of the degree of their longevity.

INTERNATIONAL HORTICULTURAL CONGRESS, PARIS.—The meetings will be held on the 25th and 26th of May, and on the 27th (Sunday) there will be an excursion to Versailles, where the members of the congress will be received by the Horticultural Society of Seine-et-Oise, under whose guidance they will visit the National School of Horticulture, the principal nurseries, and the gardens of the Palace of Versailles.

ANIBA PERUTILIS.—In an account of this tree published by M. EDGAR RODIGAS in the *Bulletin de la Société Française d'Horticulture de Londres* (1899), the author says:—"There is found, in Columbia, a tree, the wood of which is so frequently used, that it was first described in 1894 in the *Kew Bulletin*, under the specific name of *perutilis*, to signify the utility of all parts of the tree. The botanist who so named it found the tree so different from the group in which it should have been included, especially the genus *Aydeudron*, that he gave it a new generic name, and called it *Aniba*. The plant is, therefore, *Aniba perutilis*. The Kew herbarium includes a specimen obtained in Columbia by Dr. JOSÉ TRIANA, and labelled *Aydeudron*, with the note: *Laurel comino—Andes from Antioquia—Medellin; altitude above sea-level, 1540 feet*. The *Aniba* has proved particularly valuable, in that it alone and exceptionally resists those terrible winged insects that attack other woods in Columbia, and after a certain time destroy them wholly. A house built of any other wood is valueless to the proprietor, but the *Comino* (another name by which the *Aniba* is known) used for building purposes resists the insects without being injured by weather, soil, water and climate. The tree is especially frequent in the department of Antioquia. For centuries the largest *Comino*-trees have been buried in the forests, and are covered with mould and leaves. These trees give the best wood, that which is most glossy for the construction of fine furniture. This one tree, *Comino liso*, is found abundantly in the forests; *Comino crespo*, with streaked or variegated wood, is rather rare. The tree does well in an average temperature of 12° to 15° C. (54° to 77° F.). It may find a place in Florida and other American districts. It is naturalised at the Cape, and the cultivation of it might even be recommended in the Congo and all districts where Coffee, Bananas, Dates, and Cloves grow. It would also doubtless grow on the shores of the Mediterranean. In Europe *Aniba* should be treated as is the common Laurel; probably 10° C. would enable it to bear an average amount of foliage."

NEW YORK SOCIETY OF HORTICULTURE.—We learn from *American Gardening* that last April a representative gathering of horticulturists was convened at the New York Botanical Garden to consider the advisability of founding a horticultural society in New York. The set of resolutions drawn up with a view to facilitate organisation suggests that the objects of this Society shall be to collect and diffuse correct information on all topics relating

to the culture and care of plants, and to promote a taste for the same. The Committees of the Council shall include:—(1) A Floral Committee; (2) A Fruit Committee; (3) A Vegetable Committee; (4) A Forestry Committee; (5) A Membership Committee; (6) A Finance Committee. These resolutions, and others dealing with rules of membership were accepted and referred for consideration to a temporary Council that meet again this month, when the report of the nominating committee for permanent officers will also be received.

NELSON, NEW ZEALAND.—The vegetation here surpasses anything I have seen in all my travels; and to-morrow I am to go on a coach-ride and shall pass through miles of *Todea superba*, averaging 8 feet in height. I have seen literally millions of the most beautiful Tree-Ferns, and visited the Hot Lake districts, weird, uncanny places. *Peter Barr*, March 26, 1900.

"FLORA CAPENSIS."—The conclusion of the seventh volume has now been issued, containing the remainder of the Gramineae, by Dr. STAFF; and "addenda," and "corrigenda," together with a preface and full index. Some fifteen new species of Restiaceae are added by Mr. BROWN.

"FLORILEGIUM HAARLEMENSE."—We have received two parts of this publication, which is devoted to the illustration and the history of a selection from the best varieties, old or new. Among those now illustrated are:—

Hyacinth King of the Yellows.—One of the best yellow Hyacinths in the trade, raised by Mr. ZINGELER, of Haarlem, and sent out in 1871; tab. 34.

Tulips: Golden Standard, red stripes on a yellow ground; *Bride of Haarlem*, variable in colour, in the plate a blushing bride is represented; *Le Matelasse*, rose-coloured variety, which appeared about 1870; tab. 35.

Hyacinth Sir William Mansfield.—One of the best trade varieties, of faultless habit, with a large bulb, and a dense spike of reddish-violet flowers. It was raised by the late M. A. J. VAN DER VELDT, of Haarlem; tab. 37.

Tulips Couronne d'Or.—This variety was well known in the early part of the century, and is still a favourite. It has double yellow flowers.

Rubra maxima was introduced about 1860, and has double crimson flowers; tab. 38.

Ranunculus grandiflorus superbissimus.—The "Persian" varieties figured are: Emperor of Morocco, dark brown; Montblanc, white; Grand Conquerant, rose; L'Étincelante, scarlet; Queen Victoria, white, spotted with pink; Golden Gem, yellow; tab. 39.

"MINIATURE GARDENING" (London: WELLS, GARDNER, DARTON & Co., 3, Paternoster Buildings).—The scope of this miniature book (by PHOEBE ALLEN and Dr. GODFREY) will be understood if the titles of the chapters are enumerated. The topics dealt with are:—1, What to grow; 2, How to grow perennials and annuals; 3, On the sowing and general arrangement of borders; 4, Bulbs; 5, Rockeries, Arches, Screens; 6, Roses, Creepers, &c.; 7, Hedges, Paths, Grass-plaits (&c.); 8, Window-gardening; 9, Window-boxes; 10, Cuttings, &c., &c.; 11, General Hints; 12, On Gardeners' Friends, Foes, &c.; on Tools. The information given is reliable, and such as many amateurs are glad to obtain. But so many gardening-books are already in the field, that it is not surprising that this new-comer is not remarkable for originality. In any case, it gives a great many hints in small space, and as a fresh generation of gardeners is always coming up, this book may help them as well as a weightier one could do. It is the more useful in that it applies especially to the management of small and of medium-sized plots (of pleasure gardens), not to that of those where Roses grow by the acre and bulbs by the hundred.

DRIED FRUITS FROM AUSTRALIA.—The success (writes Mr. J. PLUMMER, of Sydney, New South Wales), which has attended the export of fruit from Tasmania has shown Australian orchardists that they may find it more profitable to grow with a view to exporting to England than to place their product in a glutted market at home; and it needs only a few successes in London to cause a development of the trade. During the past few years the dried fruits prepared at Mildura, Victoria, have made a good impression in England, and demonstrated the possibility of profitable trade, provided all the primary conditions of careful curing and packing are scrupulously and undeviatingly fulfilled. Victoria has recently opened up an experimental exportation of Apples to Java and Singapore; and the shippers consider that they have discovered an ideal packing material in the shredded bark of the Tea-tree (?), which has been used also with great success as a packing medium for Passion-fruit, consignments of the latter having reached London in an excellent state of preservation. There are, indeed, great possibilities in the matter of an export trade in fruit, not from New South Wales alone, but from all the Australasian colonies, when shippers have learnt how to dry and pack their consignments in such a manner as to ensure soundness and preservation of flavour during the voyage. At present, as the wine-growing interest, the fruit industry has suffered, not so much from lack of foreign appreciation and interest, as from the inexperience of those engaged in the trade.

PUBLICATIONS RECEIVED.—*Das Gärtnerische Planzeichnen*, 2nd edition, by T. Burmeister, and published by Friederich Vieweg and Sohn, Brunswick. A manual for self-instruction for the use of young gardeners and horticultural schools in drawing garden plans. The little work is illustrated with side and bird's-eye views of gardens and parks; the usual forms assumed by a variety of trees and shrubs, when seen from above and from the side; the proper methods of forming the junctions of walks and roads; the art of filling in a plan in colours; a specimen of a working plan drawn to scale; and a mass of general information of use to the gardener who is desirous of planning and carrying out landscape gardening without the aid of the specialist. To be obtained of Williams & Norgate, 14, Henrietta Street, Covent Garden, London, W.C.—*Sixty Bedding Designs*: from Messrs. H. Cannell & Sons, Swanley, Kent. Price 6d. This publication gives illustrations of sixty geometrical designs for flower beds, and full particulars of the kinds of plants required for each, with hints upon the best methods of arranging them for effect.

PLANT PORTRAITS.

DENDROBIUM BIGIBBUM, Lindley, *Kränalin in Garten Flora*, t. 1472.

JACOBINIA SUBERECTA, *Revue Horticole*, April 16. Compare *Baricographia Ghiesbreghtii*.

MARICA GRACILIS and *M. NORTIANA*, *Revue de l'Horticulture*, Belge, May.

ROSE SOLIL D'OR, Orange salmon. To be sent out by its raiser, M. Parnet-Ducher, of Venissieux, near Lyons; *Revue de l'Horticulture* Belge, May.

ROSE MAMAN COCHET. A sport from Madame Cochet; *Roten Zeitung*, March.

SOLANUM PIERREANUM, berries globular, of the size of a small Plum; reddish-orange, streaked with brown. Gaboon. *Revue Horticole*, May 1.

TRILLIUM CERNUUM, L., *Meehans' Monthly*, April.

TREATMENT OF RICHARDIA AFRICANA.

THE old method of drying-off the plants during the summer months, and starting them anew in the autumn, is now being given up, though, so far as it meets the requirements of those who still follow it, there is nothing to be said against it. It has disadvantages, the chief of which is the shorter period of time during which the plants furnish spathes, owing to the check caused by drying-off. Many gardeners who used to plant out their stock during the summer months, made elaborate and needless preparations of no real benefit to the plants. I have grown *Richardias*, planted out in that season, nearly thirty years, and have found no occasion to treat them with any special care, but merely to put them into ordinary garden soil, in which they invariably have thriven. Last year, for example, I employed several *Richardias* furnished with spathes

in a scheme of flower gardening, the same plants having flowered continuously during the preceding winter and spring, and they have continued to do so during the same seasons this year.

This power to produce spathes without interruption appears to depend solely on preserving the plants under the suitable conditions in regard to temperature and nutriment. At any time of the year, if the growths are examined, embryo spathes in various stages of development will be found pushing from the base of the stronger leaves, which always produce two in succession; not every leaf is, however, productive of spathes, and occasionally a new growth appears which forms a distinct plant, and in turn furnishes its quota of spathes, and thus maintains the perpetual nature of the plant. This acquired, continuous habit is by no means singular in cultivated plants; the zonal *Pelargonium* affording an equally striking example. But, in this case, the change has been largely due to improved varieties, whereas in the *Richardia* it is due solely to cultivation. Moreover, the plant continues to produce spathes either when growing in a pot all the year round, or planted out, or by the method best suited to gardens, i.e., planted out during the summer and kept in pots for the rest of the year.

The question therefore is, which is the best method to follow; and I think where a long continued supply of spathes is a consideration, as, for instance, during the months of November and December, as well as the early months of the year, then there is no doubt that the system which allows the plant making growth continuously is the best fitted to meet these ends. As already noted, the plants succeed perfectly in ordinary garden soil. When making new growth, and when in spathe in the summer months, they may be transferred to the flower-beds and borders, or potted up for emergencies without suffering any check. When finally potted, they are best left out-of-doors till established, as the foliage will withstand 6° or 7° of frost, and during winter and spring they require a not too high temperature, plenty of water, with oft-repeated applications of manure. B.

AUTUMN-RAISED LETTUCES.

IT is some time since these have been so plentiful and good as at the present time, and in my case the large quantity available is more the result of accident than design, and was due simply to their failure to grow in the droughty summer and autumn of last year, which caused many seeds to lay dormant for lack of moisture until the rains moistened the ground to some depth. The fact of these plants being late and small in size rendered them less susceptible to injury by frost, and it will be admitted that frost was very damaging to many kinds of outdoor vegetables last winter. The variety *Hammersmith Hardy Green* has with me withstood the frost the best among the Cabbage section; and a few *Early Paris Market* survived on a west border. *Bath or Brown-seeded*, and *Hicks' Hardy Green Cos Lettuce*, were unharmed, and will furnish a good supply of heads for some time longer. The *Hammersmith* variety matured some excellent heads by the middle of April, planted out at the foot of a south wall, which for such a cold season is very good. I have had this variety forward in the month of February on a south border, but it is by no means certain from sowing on any particular date to obtain hearted Lettuces so early outdoors. It is a good practice with out-of-doors Spring Lettuce to sow once a week in August, and the first week in September, planting some from each in different positions. *Tom Thumb* or *Commodore Nutt* and *Paris Market*, are useful for warm positions, and to those having no room for forcing, should make as a rule to sow these varieties in the autumn. A little litter spread over them in bad weather is advisable, and often make all the difference between success and failure. In

the walled garden at Leighton, Westbury, which is somewhat open and cold, *Stanstead Park* is Mr. Bound's favourite, and planted side by side with *Moor Park* and *Bath Cos*, it is proved to be a good Lettuce. *Stanstead Park* withstood frost almost to a plant, while the others had entirely disappeared. It is somewhat remarkable that the usually hardy *Bath Cos* should have suffered so badly, proving once more the un wisdom of depending on one variety for winter and spring. *Stanstead Park* is an excellent winter Lettuce, similar in colour to the *Bath* variety, and in their earlier stages of growth some gardeners would find it difficult to decide whether it is a *Cos* or *Cabbage* variety, the similarity being so marked. For summer use it is unsuitable, as in hot weather the plants quickly run to flower. I have hitherto depended on *Hammersmith Green*, but the excellent record furnished by the Leighton bed makes it clear that *Stanstead Park* is a good rival. W. S.

FOREIGN CORRESPONDENCE.

BRANCHED COCOS, &c.

I READ with the greatest interest in the last number of the *Gardeners' Chronicle* the little note about the two specimens of branched *Coco-Palms*, *Cocos geriba*, B. Rodr., which accompanied the pretty illustration of one of them. I do not remember ever having heard of branching taking place in the genus *Cocos*, which, I think, is non-stoloniferous without exception, and I will admit that I have, without hesitation, more than once removed such *Cocos*, which for some reason or other had lost their terminal bud; while had I left them it might perhaps not have been impossible that branches would have been produced. It would be interesting to see if the seeds produced by the two branched *Palms* will show a similar faculty of branching as the mother plants. Allow me to name a case of branching of a *Palm*, but much less remarkable than that of the *Cocos*, namely, that of an old *Date-Palm*, *Phoenix dactylifera*, L., growing in a garden at Nice (Rue Longchamps), and if I remember rightly another old *Date-Palm* growing in the botanical garden of Coimbra, Portugal. The *Phoenix* species, as is well known, nearly all produce suckers in abundance, and even at a certain height above the ground, but after the trunk has reached a height of about 1 metre, no suckers (or branches) are produced. Can anybody who has had occasion to see in its native country the now so much cultivated *Phoenix jubæ*, Webb (Ph. canariensis, hort.), afford information about the species, whether it produces suckers like the other [all?]. I have never seen any plant of this species which produced suckers but in late years, after hybridisation between the different *Phoenix* species had become a common thing, either artificially or naturally. I have seen young *Palms*, possessing altogether the appearance of a *Phoenix jubæ*, but producing suckers. I should, until I know for certain what is the case in its native country and where wild growing, consider such plants as hybrids.

Writing about plants 'producing suckers, please allow me space for asking persons who have had occasion to observe *Musa Ensete* in its native country (Abyssinia), if it produces suckers, as claimed in the *Gardeners' Chronicle* of March 3, 1900 ("Answers to Correspondents"). I have seen many plants of this species flower and fruit, but they always died afterwards, without ever producing suckers. Still, I shall leave in my garden undisturbed the eight or ten plants, now having fruited, so long as they show the least sign of life, to see if any suckers should be produced.

According to the abbreviated synopsis of *Musæ* found in Nicholson's *Dictionary of Gardening*, the *M. Ensete* belongs to the subgenus *Physocaulis*, which ordinarily is non-stoloniferous. Is the *M. Ensete* an exception? A. R. Proschowsky, Nice.

HOME CORRESPONDENCE.

THE ROYAL HORTICULTURAL SOCIETY.—Kindly permit me to say that I quite agree with the remarks which have recently been made in the *Gardeners' Chronicle* by several writers concerning the proposed scheme of the Council of the Royal Horticultural Society to sell Chiswick, and with the proceeds of such sale create a new Chiswick at Limpsfield, Surrey! The letters printed in a recent issue of the *Gardeners' Chronicle* over the initials "O. T. F.," and the signature of W. Roupell, and the *nom-de-plumes* of "From the

visit made to some of the many representative gardens in various parts of the country—including several within the same metropolitan area as Chiswick—and in which vegetation is everything that could be desired. The trials of novelties at Chiswick have been considered unsatisfactory for several years past, and are still viewed in this light. Therefore, in these circumstances, I beg to suggest to the Council of the Royal Horticultural Society the advisability of selling Chiswick Gardens [the Society are not the owners! Ed.], glasshouses, plants, and everything appertaining thereto at once, and with the sum thus realised build a suitable horticultural hall in a central part of London,

way affecting the art and science of British horticulture. The statement made by the Council regarding the soil of Chiswick Gardens having become "exhausted," "played-out," &c., is, to say the least, amusing, more especially when the announcement is made by such an authority. What about the hundreds of old gardens which have been cultivated and heavily cropped for centuries in various parts of the country, and which continue to yield prize-winning vegetables, &c., at our large exhibitions of the present day notwithstanding; gardens into which plenty of good manure is annually dug, or trenches, and are judiciously cropped, will not become "exhausted" or "played-out." Will they?

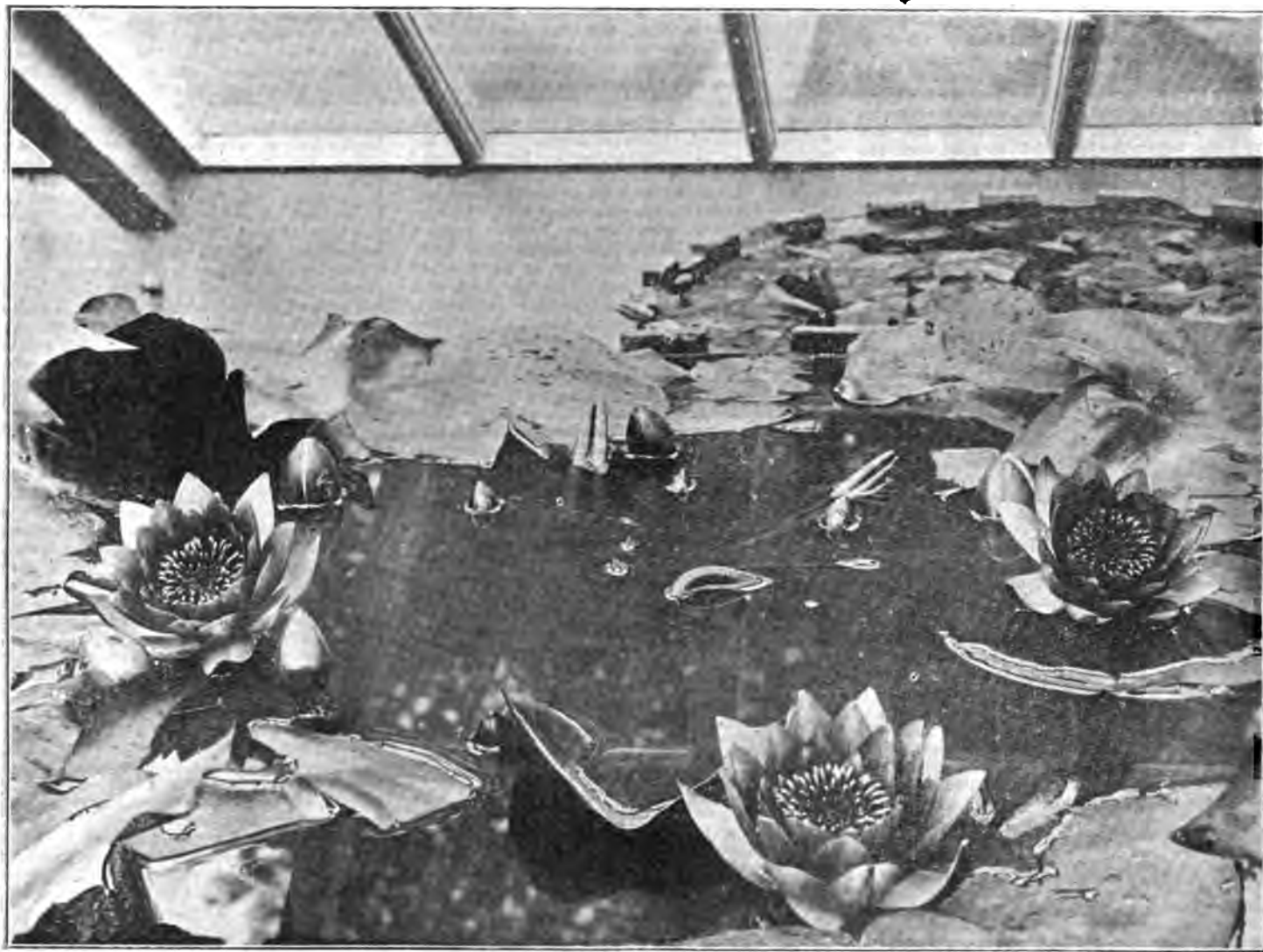


FIG. 105.—*NYMPHÆA ELLISIANA* GROWING IN A TUB, AS EXHIBITED AT THE TEMPLE SHOW, MAY 23, 1900.

(From a photograph by J. Neuma, Ealing.)

North" and "Metropolitan," go to show clearly enough that Chiswick gardens are of no practical use either to the Royal Horticultural Society or to the gardening community at large. On the contrary, the Society appears to suffer an annual net loss of £1,400 in retaining them, and British and foreign horticulturists are alike disappointed in visiting the gardens of the Royal Horticultural Society of England for the first time, and subsequent visits only emphasise the fact that good examples of cultural skill in the way of plants, fruits, vegetables, and flowers, such as might reasonably be looked for in the Society's gardens, are conspicuous by their absence; and that to find that evidence of cultural skill which real horticulturists are ever ready to see and profit by, a

and give up for ever the absurd idea of forming a new Chiswick at Limpsfield, or any other place for that matter. In such a hall the plants, fruits, vegetables, and flowers, staged by the trade and private growers at the fortnightly meetings, would show off, and be seen to advantage. These fortnightly exhibitions are made exclusively by nurserymen and private growers, Chiswick Gardens rarely contributing anything thereto; so that the disposing of the historical gardens would not in any way affect the fortnightly displays referred to, and the Society would effect an annual saving of about £2,000 by selling them. This, in addition to the receiving of a large lump sum down for the 11½ acres, comprising the gardens and everything belonging thereto, and without in any

The Chiswick trials are of small moment to horticulturists generally, seeing that they have not for several years past been considered satisfactory. I think the idea of sending novelties to our large seed-growers, as put forth by Mr. E. J. Deal, p. 299, a good one. The Royal Horticultural Society could send the novelties to be tested alongside existing kinds and varieties to one large seed-growing firm one year, and to another the following year, and so on; the seedsmen being willing to accept such novelties for trial. At the proper time, three or more experts, accompanied by the Secretary (Rev. W. Wilks), should be appointed to inspect the trial-grounds and make awards where merited. The experts need not necessarily be members of the "committees," fresh men being

selected each year—men whose qualifications justified their selection for the work. In conclusion, I wish to say that in the foregoing remarks no reflection is intended on the capabilities of Mr. S. T. Wright, the courteous superintendent of Chiswick gardens, whom I know to be a good, all-round, practical horticulturist. *F.R.H.S.*

—In a recent issue of the *Gardeners' Chronicle*, the Secretary of the Royal Horticultural Society solicits suggestions as to the future of the old Chiswick Gardens. Without assuming to be a clever guide capable of directing the affairs of the Royal Horticultural Society on the easiest road to success, I may give a few more views of many country gardeners. In the first place it would be interesting to know how it is that the soil of Chiswick Gardens has become exhausted, whilst old gardens, as those of Dalkeith, Trentham, and many others continue productive, the same to-day as for half a century or longer. Then, again, some of the advisers recommend a better position with better soil, principally for trial purposes, which, I consider, is a serious mistake, as all trials should be made in fair average soils, and not in a sort of Land of Goshen; neither are large, extra well-grown produce of much service for ordinary consumption, for the cooks do not like very large vegetables, and tell us that such are only fit for cattle feeding. For example, Cauliflowers are preferred when about 4 inches diameter, white and solid; Carrots no larger than a boy's finger; Brussels Sprouts the size of small Walnuts, and as hard as a nut; Celery well blanched to about 6 inches, of moderate size; Peas rather under than over sized; French Beans too, are preferred of a small size, and all other vegetables after the same fashion. Therefore what is the use of an extra rich soil, productive of great size in all kinds of vegetables. Then again for fruit trials, the same remarks apply to large Apples, Pears, and so forth; they are unsuitable for either family use or for the markets. For educational purposes I think that the Society's Gardens should not be very far distant from Kew, and for usefulness and popularity they should be in a wealthy populous centre, a fact which is well demonstrated by the success of the annual shows in the Temple Gardens. *J. H. Goodacre.*

—From the correspondence which has recently appeared upon this subject, there can be no doubt that public interest has been awakened, and that the time is now ripe for settling the long-deferred question of founding a proper horticultural institute. It is impossible to imagine that the proposed new Chiswick scheme should be carried through at the expense of the Institute of Horticulture, still it appears that if the Limpfield project succeeds the institution must be shelved. Now I maintain that the home of horticulture is far more necessary at the present time than a new Chiswick, and I beg to urge for a conference in order to thoroughly investigate these matters and take definite and combined action. *James L. Wood.*

THE EARWIG.—In the *Gardeners' Chronicle* of April 28, p. 268, Mr. Walter Wesché doubts whether so much mischief is done by the earwig as is attributed to it, but I do not think that anyone having a garden is likely to encourage his toleration of them in any degree. All observers of insect life know well that earwigs will eat aphides on account of the saccharine matter they contain, but this does in no way balance the damage they do to Dahlias, Chrysanthemums, &c. To give them a place with the scyrrhus-fly, the ladybird, and lacewing-fly would very much lower the estimation that gardeners as a rule have for these beneficial insects that have no injurious propensities. *E. Sandford, Bognor.*

EUCALYPTUS GLOBULUS IN THE OPEN.—I regret to report that trees here after attaining the height of 20 feet, and in spite of the stems having been wholly protected with hay-bands, have been killed to the ground during the past winter. We have registered frosts of 25° and upwards. *A. R. Pearce, Braymead Gardens, Berkshire.*

CARNATIONS FROM SEED.—I enclose a few Carnation blooms similar to which I have been cutting all winter, from plants that are still in full bloom. Seeds were sown in April, 1899, in pans in a greenhouse. The seedlings were potted off into thumb-pots, and subsequently planted out-of-doors in a sunny position. They were lifted again in

October, and put into a late Peach-house, where they have bloomed continuously. They are invaluable for button-holes when other flowers are so scarce. The compost I use is one of two parts loam, one of leaf-soil, and one of road-grit. *A. R. Pearce, Braymead, Bray, Berks. [Excellent flowers. Ed.]*

THE POTATO.—Although the Potato was imported into this country in the sixteenth century, it was apparently not received with any particular favour; and its vicissitudes were both strange and peculiar, as the following excerpt from *The Social History of the People of the Southern Counties*, 1856, p. 199, is, in some degree, proof: "Potatoes, the root which has produced upon mankind and to the politician such immense effects of late years, were sold in 1613 at 2s. the lb. Then they were a luxury, and so continued till ninety years ago, when, 1765, Lord Sheffield bought some, and soon after, farmers began to plant them in the fields. This novelty experienced the usual fate, viz., that of exciting prejudice against it. At an election at Lewes, Potatoes shared with popery the indignation of the people, and 'no popery! no Potatoes!' was the popular cry. One, Moore, an Irishman, planted the first field of Potatoes in Devon, at Poltimore, where he resided. (This is curious, for one of the best flavoured Potatoes of to-day is called 'Devonia,' and was raised by the old firm of Veitch, of Exeter.) A few farmers about Chard, Somersetshire, followed this example about 1784. Potatoes excited so much prejudice in France, from a belief they would bring back leprosy once more, that the growing crop required to be watched for protection. So late as 1816, the cook of a large establishment at Valognes, Normandy, did not know how to dress a present of that root sent from Guernsey." This tends to show that this Island was among the first that grew it for general distribution. The Potato is dearer to buy at the present time, nor is the quality so good, as it was about "the thirties" of this century. Then the very best were retailed at three pounds for two-pence, or even less, and a penny a pound for "new Potatoes" was considered beyond the bounds of economy. Large size was sought for, and tubers realised a penny to three-halfpence each, being the best for baking. And "the baked Potato-can" in cities and towns was a recognised peripatetic industry, that benefited both "the well-to-do" and the very poor; the feminine sex in winter often buying the hot Potato to carry in their muffs for the very warmth alone. But now the tuber is less in size and dearer, and thus this kind of trade is extinct. Even as late as 1840-47, five shillings a sack was the usual price for such as Early Shaws, and half-a-crown for the small ones, in the rural districts called "pig's size," for these, boiled and mashed, helped to keep both swine and poultry. It seems just a little odd that now land-rents are less, that Potatoes are dearer. It is but right to mention that since I wrote about the variety Up-to-date, I have met a farmer who was a large grower of Potatoes in Lincolnshire, and that he gave it as his opinion that it was one of the best croppers that he had grown since the Magnum Bonum, but that it was deteriorating in size. He also freely admitted that it was "quite tasteless," but nevertheless a good market sort. This I denied, for a bad article could not be good, and to sell such is an imposition on the public. To this, by way of excuse, he replied that he mostly "exported the crop." Now, referring to the diminution of size. Is this not to be accounted for in some degree by the planting of small tubers, little bigger, if anything, than those formerly called "pig's size?" It is well known that by the selection of the largest corns of Wheat that Major Hallett grew the ears to over 12 inches in length, and so with the seed of some other large produce. Therefore, taking the small, and then the small, and the small again, it stands to reason that a general reduction of size is likely to ensue. Some years ago I began the experiment of planting six of the usual seed size Potatoes, and six large; but circumstances prevented my carrying my experiment beyond two years, yet in that time there was a distinct difference, the larger being much the best crop in size. But this was too short a trial for the experiment to be of any value, so I make no deductions from it. *Harrison Weir, Sevenoaks.*

MR. MEEHAN AND THE FUCHSIA.—The history of the Fuchsia, as referred to in an extract given by you lately, requires a fuller statement:—Even as a lad I was fond of experiments

in gardening, and of repeating the experiments of others. My father was a rare plantsman and Linnean botanist. His friends were often favouring him. Fuchsia fulgens had been recently introduced from Brazil; a friend had sent him some flowers. I had been reading of Knight's experiments in crossing Peas, and was about to repeat them, when my father showed me the Fuchsia blooms. I dropped the Peas, and cutting off carefully the immature anthers of Fuchsia longiflora, applied the pollen of the fulgens. A large, plump berry followed, and a number of plants were raised, flowering the year following. The *Gardeners' Chronicle* had just started. This was in 1841. I sent a flower of one to Dr. Lindley, under assumed initials. The praise of the flower was high. Dr. L. had never seen anything like it. The next week appeared a note, asking the correspondent send to his real name to Messrs. Youell & Co., of Yarmouth. It was to be called Harcourt, but there being so many Vernon Harcourts, Col. Francis suggested the name of his country seat "St. Clare," near Ryde, which was adopted. No money would be taken, but a large number of rare plants were given in exchange. Youell & Co., however, insisted that the fifteen-year-old boy-raiser should have something, and a One-pound note was sent, with which the boy bought and proudly wore his first frock coat. Youell & Co. kept it on hand some time to get a large stock, and I am not sure but Dominiana and Standish, also hybrids with fulgens, did not get into circulation first. My work was started in 1838, in my thirteenth year, as stated in the biography. Standish and Dominy may have been before me, but as the Fuchsia fulgens had been but so recently introduced, it could not have been much ahead of me. I have never, however, sought priority in this, but have given the story to friends who have had the ear of the biographer, as a good piece of work for a boy. It is a true hybrid. *Thomas Meehan, Germantown, Philadelphia, U.S.A.*

STRAWBERRIES IN BARRELS.—Crazes usually have short lives, and very recently there was one in favour of growing Strawberries in barrels with holes bored in them, so that the fruit produced on them could hang without contact with the soil, and be out of the reach of slugs. We live in an age of progress and of pinch, and now land is dear, and growing Strawberry-plants on it as hitherto is both wasteful and vulgar, it is advised that for economy sake we use barrels filled with soil, and perforated all over the surface with holes from which the plants, leaves, and stems, may project, and the roots never. Many persons regarded this method of culture as a species of fetish, and worshipped it; others regarded it with scepticism, or amused interest, and resolved to give it a fair trial. Amongst these was that able and enlightened gardener, Mr. James Hudson, who obtained several barrels without heads, had holes cut around the sides, filled them with soil according to instructions, and planted them, each barrel with a diverse variety. These barrels are about 30 inches in height, and across the top are about 18 inches. On each open top are put seven plants. These in each case as may be expected look well, and promise to bloom admirably. Those projecting from the side-holes down to the centres of the tubs look fairly well, but all those below do not promise to be a success. It would seem as if these were too far from feeding and moisture. The form of tub most profitable evidently would be one of 3 feet diameter, and 12 inches in depth. That should be filled with soil. On that should be fixed a ring of tub, without top or bottom, 2 feet in diameter, also filled with soil; and yet on that a further ring, 1 foot in diameter, also so filled, the whole forming a pyramid. The plants, 6 inches apart, being put close to the wood edges, would thus enable some forty to be planted, and every one well watered and fed. *A. D.*

OUTDOOR CAMELLIAS.—Amidst the abundance of exhibits seen at the Drill Hall recently, it is not unlikely that the singularly interesting display of Camellia flowers from outdoors, sent from Sir F. Treves Barry's beautiful place, St. Leonard's Hill, Windsor, did not attract the notice they merited. Had these flowers been undescribed, probably most of those who did see them would have imagined that they were from greenhouse plants, they were so good, fresh, and really beautiful. It is so difficult to induce sceptical persons,

always accustomed to grow Camellias as house-plants, that they are amongst the handsomest and hardiest of our evergreen shrubs. The beautiful flowers sent from St. Leonard's Hill told of the Camellia's merits as a hardy flowering shrub, but a visit to those gardens is needed to enable anyone to realise how wondrously free are Camellias to

and equally suits all these things; but in the latter case it is helped in vegetable fibre by means of drainage and leaf-soil. At Glen Eyre the Camellias are growing in a small valley or hollow, in the Basset elevation. At St. Leonard's the Camellias are mostly on high ground; indeed, the whole place is on a considerable elevation. Prob-

have seen very large ones at Glen Eyre. The late Mrs. Eyre Crabbe, who was an enthusiastic admirer of outdoor Camellias, constantly asserted that these shrubs were harder than Laurels, as when the latter were cut severely by late frosts, the former were quite uninjured. That was because outdoor Camellias make their new growth after white frosts are over. At St. Leonard's, Portugal Laurels have been blackened by late frosts, and Camellias have been quite unhurt. Those who experiment with Camellia-planting often make the mistake of putting out plants that, having been for some years kept in pots, the roots have become cramped and the wood stunted. That is not at all a fair test, as no other shrubs would be similarly treated. To treat them properly, plants some two or three years old should be planted, if previously grown in warmth, after they have been well seasoned. The best time for planting is the end of April or early in May, as top growth is then being made, and root-action is quicker also. Whatever the nature of the soil generally, a little compost of loam, peat, old hot-bed manure, and sharp sand is good placed about the roots, and once these get well hold of this material, plants then shift for themselves. But soils that are composed of clay, or of chalk, seem unfavourable for Camellia culture. Plants put out against walls that abut on to pleasure-grounds, especially where tall trees give a little shade, in time make noble objects. They should not be hard pruned, but having the main branches secured to the wall, have the side branches jutting out some 18 to 20 inches in length, and in such form they bloom with marvellous profusion. I have seen the double-white, double-striped, and others at Glen Eyre, literally masses of flower, in such cases. Although these outdoor varieties do not largely include those very fine newer forms which Messrs. W. Paul & Sons have made so familiar to us at the Drill Hall, yet there is no reason to assume that they are less hardy than are the old varieties. I noted of the St. Leonard's collection fine reds were Chandleri and Chandleri elegans, Lavinia Maggi, imbricata, rubra, Madame Lebois, Proserpine, &c. Of pinks, Augustina, superba, Eclipse, and a very pretty seedling, striped, The Mikado, a beautiful variety; Lavinia Maggi again, Tricolor, Countess of Orkney, and a seedling; and of whites, Matthiotiana alba, alba plena, double; Laing's White Single, and a much purer single white seedling, and various others. The Glen Eyre collection includes other and some older varieties, planted forty years since, or earlier. Possibly some having gardens and suitable soils, may be induced to try Camellias as hardy shrubs much more henceforth than has hitherto been the case. A. D.



FIG. 106.—PLUM-TREES GROWING IN POTS, EXHIBITED AT THE TEMPLE SHOW, MAY 23, 1900, FROM MR. LEOPOLD DE ROTHSCHILD'S GARDENS, GUNNERSBURY HOUSE, ACTON.

(From a photograph by J. Newns, Ealing.)

bloom, and when in flower what beautiful objects they make. Varieties, too, are numerous, and if many seem old, that is but due to the fact that, like the collection at Glen Eyre, Southampton, they have been planted for many years, and are now very large specimens. At Glen Eyre the soil is of a semi-peaty nature, and suits Camellias, Rhododendrons, and Pinuses alike admirably. At St. Leonard's the soil is of a stiff or loamy nature,

ably a moderately dry, well-drained situation suits best, and one where wild east or north winds are broken by belts of trees or shrubs. But that extent of protection is less needed because Camellias are hardy, but rather because when blooming it is not well to have the branches beaten about by strong winds. April is, for most outdoor Camellias, the best flowering month. I do not know to what dimensions the St. Leonard's plants may have attained, but I

BULB GARDEN.—*Lilium candidum*. I bought some clumps of this Lily, and found on dividing them that I was the possessor of sixty bulbs; of these, I potted the largest in 32's, about the beginning of the month of September last, placing them out of doors where they remained till February. The smallest bulbs were planted in the open ground. Those that were potted I brought into an intermediate-house early in February, and these are in bloom at the present time. The smallest bulbs that were planted outside are pushing up flower stems, and I intend to have them in bloom by Easter next year. H. G. Ferri, *The Asylum Gardens, Canterbury*.

COX'S ORANGE PIPPIN, AND PATENT RIGHTS IN NEW PLANTS.—I was much interested to read in the *Journal of the Horticultural Society* the proceedings of the Conference on Hybridisation, wherein Mr. Geo. Paul mentioned Cox's Orange Pippin, and said that he believed the man who originated that excellent Apple did not make a penny out of it. I give you the following story, which may interest some of your readers. About twenty-five years ago I sat beside the late Mr. Charles Turner at a social meeting of well-known horticultural and business men at the invitation of the late Joseph F. Meston, the landscape-gardener and contractor. The gentlemen present included the late B. S. Williams, W. Catbush, Mr. Holmes, P. Barr, Mr. Rogers, the Superintendent of Battersea Park, and McIntyre of Victoria Park, of whom only Mr. P. Barr is now living. I and Mr. C. Turner entered upon congenial matters, and after the dinner he brought from his capacious coat-pocket some fruits of Cox's Orange Pippin, at the same time asking me to taste one—"The best friend I ever had, for it has put £4,000 into my pocket. I never go to bed without one under my pillow when I can

get one." I was so much interested by what he told me, that I asked Mr. Turner if he could give me its history, which he did in the following words: "Some years ago a neighbour of mine, Mr. Cox, a builder in a small way of business at Langley, was spending Christmas-day with his wife, and in the course of the day an Apple was eaten by his wife, which so pleased her that she determined to sow the pipe, which she did, in a flower-pot. In course of time two seeds germinated, and the seedlings were planted in the garden, one of which died before bearing fruit, and the other was the present tree from which the graft was taken that bore the fruit you are now eating. I watched the tree grow, and tested the quality of its fruit with regard to flavour and keeping, and found it so good that I determined to acquire the entire stock, which I did at a cost of £40." Such is the history of this variety of Apple as related to me by Mr. C. Turner. If this is correct, which, so far as I am personally concerned, I never doubted, such an adventitious product is in the nature of treasure-trove. The case is very different where great pains and expenditure of time and money are devoted to the hybridisation and culture of fruits, &c.; and my opinion is that Mr. G. Bunyard is right when he tells us to make as much out of a new plant as we can by carefully protecting until the stock is sufficiently large to be remunerative; but until the whole matter is placed on a surer basis than at present, I fear we are not likely to receive much assistance from the legislature. *Charles Dennis.*

DRACOCEPHALUM NUTANS ALPINUM.—This very effective Siberian alpine is just coming into flower. The plant grows 6 to 12 inches high, and is, of course, perfectly hardy. The individual flowers are not larger than those of the Ground Ivy (*Nepeta Glechoma*). They are, however, so thickly crowded on the numerous spikes, that they catch one's eye anywhere, and are capable of producing as good an effect as the *Aubrietia* itself. The colour is a particularly strong blue-purple, quite free from any suspicion of magenta. Self-sown seedlings increase it rapidly. *A. K. B.*

FLOWERS: THEIR USES AND THEIR PRICES.—Certain florists' shops at the West End of London afford a spectacle to the "man in the street" just now of which our grandfathers never dreamed in their wildest flights of fancy. The picked specimens of Roses, red, pink, and white; the *Narcissus*, the *Lilac*, the spikes of *Orchid*, the *Violets*, the *Stocks*, *Mignonette*, *Tulips*, *Marguerites*, and many others, are used in lavish profusion. In fact, the flowers upon funeral crosses and wreaths are so crammed and crowded together, that it would seem as if the florist had tried to see how many could possibly be used upon one frame. Just at present, Roses seem to be more in favour than any other kind of flower, and perhaps this is the reason for the comparative neglect of the *Narcissus* this season. As our contemporary, the *Daily Telegraph*, recently remarked: "Large tracts of land have been placed under bulb-culture in the Fen districts during recent years, and, as a rule, at this season, tons of cut bloom are despatched daily to London and the large towns. Since Easter, the prices realised have been very poor; in many cases, the amount received did not pay for carriage and gathering, and as a result, some growers have discontinued sending away further consignments, preferring to allow the flowers to wither and die in the fields. The following instance is illustrative of many others. A Long-Sutton grower despatched to Sheffield 78 dozen bunches of *Violets*, 6 dozen bunches of *Narcissus*, and 3 dozen *Arums*; his return was twelve postage stamps! Nor has the passer-by to devote his attention to flowers alone, for side by side with them, was a window full of *Strawberries*, which made nearly as gay a show as do the flowers, *Asparagus*, splendid specimens of *Pears* from Easter Beurre downwards, and *Melons* of English as well as of foreign growth. *Visitor.*

BLINDNESS IN NARCISSUS.—When I read the editorial reply to "F. C." in a recent issue, I did not realise as now appears probable that the original enquiry was from the general standpoint, and not as is usual in cases of blindness in the Poeticus group, and notably the double white form. I can assure Mr. Mallet that the blindness so-called of this latter form is a failing that is not due to deterioration, but occurs in the finest growths of which the variety is capable. I have years ago

stated in the *Gardeners' Chronicle*, how I endeavoured to test this mysterious affair, when it was once stated with considerable emphasis to be due entirely to the cold searching winds and nipping frosts of spring. The following year after selecting from many thousands of bulbs some of the finest, whose great mass of rarely dying root fibres bespoke great vigour, I planted them in pots without delay. Some I grew with moisture constantly in pans below the pots, others were heavily and freely watered, and all were placed for the winter in a cold pit so as to prevent injury from frost or the cold winds of spring. The result of all this was that I did not get a solitary flower. All were in rich soil, some planted deeply and others shallow, but the growth was decidedly inferior to that of much smaller bulbs left undisturbed in the open beds. In this kind it is not the entire absence of scapes and other parts, these most assuredly exist, and by a closer examination it was obvious that in a large majority of instances even the petals within had long passed the nascent period. The excellent promise of an abundant show of flower scapes, and the proof they otherwise frequently convey, is proof that little or nothing was wanting in the last season of their growth. I quite admit that for a long time I did believe that this blindness was due to the variety flowering so late that the heat of summer quickly succeeded. Also that it was aggravated if the soil was very light, and much drained by sand and gravel. But precisely the same thing resulted after a wet season! Then we have to remember that none of the single *Poet's Narcissus* suffer, even the frailest of these flower, and flower well; yet you may get a chance bulb, i.e., a "rogue" so-called, in among them that is obstinate enough to go its own "blind" way, possessing all the time greater vigour than the rest. "Blindness" is not shy flowering, when there is no "show" for flowering. The best remedy for shy flowering is deep planting, quite six or eight inches deep, in a good holding soil, and in a position as cool and uniform as is possible. All the *Poet's Narcissus* delight in moisture, but it is not clear that it is essential save in the case of the double-flowering kind. Apart from these I am not at one with Mr. Mallet in his recommendation of "high feeding," as if carried on through a series of years, many kinds quickly resent it. It is quite another thing to manure a plot where it is expected a three years' growth will follow without disturbance. Does Mr. Mallet refer to any particular kind when speaking of the scapes being "injured by penetrating frosts after they have left the bulbs and before they have penetrated the soil," as not a few of the earliest to flower are quite unhurt by frost with the scapes above ground, and when it should prove most severe to them. In fact, I have known *Pallidus præcox* nearly three inches out of ground, when a severe spell of frost lasting over a fortnight was experienced; yet while fixed and immovable in this icy grip all this time, they produced a glorious display of colour within a week after the frost, and bore not the least trace of hardship experienced in the very midst of active growth. *E. Jenkins, Hampton Hill.* [The reply to "F. C." referred to a case of "blindness" or a condition in which the scapes were developed, but not flowers. We supposed Mr. Mallet's letter referred to similar cases. "Blindness" would appear to be caused by some check, rather than by want of strength in the bulb. *Ed.*]

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE sixty-first anniversary festival dinner of this charity was held at the *Hôtel Métropole* on the evening of Friday, May 18, his Grace the Duke of Portland in the chair, supported by a numerous company of friends and patrons of the Institution, including Lord Powerscourt, The Very Rev. the Dean of Rochester, the Rev. Archdeacon Sinclair, Hon. Alban Gibbs, M.P., and Messrs. N. N. Sherwood, Herbert Hicks, Herbert J. Adams, Jeremiah Colman, H. J. Veitch, J. H. Veitch, Arthur Sutton, M. H. Sutton, J. Robinson, R. Milligan Hogg, R. Tout, W. Mackay, J. Rochford, P. Crowley, W. Sherwood, Ed. Sherwood, and many gardeners and horticulturists from far and near. The dinner at an end, the Chairman proposed the toast of "Her Majesty the Queen," alluding to the fact that she had been patroness of the Institution for many

years. The toast was drunk with musical honours, and was followed by that of H.R.H. The Prince of Wales (Patron), H.R.H. Princess of Wales, and the other members of the Royal Family. In this connection the Chairman alluded to the Prince's desire to take the place of the late Duke of Westminster, for a long time President of the Institution. Then came the important toast of the evening, that of the *Gardeners' Royal Benevolent Institution*, proposed by the Chairman in a few felicitous words: expressing the pleasure it gave him to do so, as he had intended to do two years ago, but was unable to fulfil his intention at that time. He was unable to understand why he had been chosen to preside on this occasion, as his tastes did not lie in the direction of gardening, but in sport, owning that it was no great pleasure to possess such a white elephant as Welbeck, its gardens, and pleasure-grounds. These were not so long ago a wilderness, but, thanks to the endeavours of his gardener, Mr. J. Roberts, promised very soon to become a "beauty for ever," and he himself a worthy patron of the Institution. Allusion was made to the general progress of horticulture both at home and abroad, and to the endeavours of the *Royal Horticultural Society* in promoting the art of gardening in this country. He trusted to horticulture to allure the people back to the land, and he believed that the School-Board, in adding botany and gardening to their curriculum, would greatly facilitate that most desirable movement. The Chairman then briefly stated the aims and objects of the Institution, and the benefits that accrue to gardeners who become subscribers, should they ever come to need assistance in old age or misfortune. As showing the great amount of good which it has done, he mentioned the sum of £84,000 which it had expended in the course of its existence. The object of the excellent Samaritan Fund was pointed out.

This toast was coupled with the name of Mr. H. J. Veitch, who after thanking His Grace for consenting to take the chair, when there were so many calls on his time; subsequently adverted to the late Duke of Westminster, and to his desire to benefit the Institution in every way, and also to the wish of the Prince of Wales to become its patron. In regard to income, 1898 was considered, he said, a record year; but 1899 was still better. The sum required to pay the pensions and other indebtedness was £3,276. The auxiliary branches had this last financial year contributed £300. In conclusion, Mr. Veitch alluded to the losses of the Institution through death during the last year, mentioning the names of the Duke of Teck, Duke of Westminster, and Malcolm Dunn; and he expressed the hope that many of those present would continue to subscribe, especially in view of the not unnatural shrinking of contributions to charities in general, as a consequence of the war.

Lord Powerscourt then made a speech embodying some kindly remarks about Malcolm Dunn's work at Powerscourt, alluding to his remarkable energy as a gardener.

Mr. Smith Barry, who proposed the toast, "Horticulture," spoke of gardens in general—gardens in Japan and in China; French, Italian, and Babylonian gardens; but of them all, the English gardens were, he believed, the most lovely, but capable of affording still more beautiful scenes, if we would make more use of the Bamboos. With this toast was coupled the name of the Dean of Rochester.

The Dean, whose utterances were of that touching kind, of which he is a master, said he had lived in a royal palace with the best of queens; he had taken tea with the poorest, and had lived with the highest, but there were no men who had so beautified the land we live in as had the gardener; and he maintained that there was nothing that brings so much happiness into a man's life as horticulture; paying special tribute to the firm of Veitch, as introducers of beautiful exotics, and to William Robinson and his *Flower Garden*; and alluding to the endeavours of the County Councils in fostering a love of gardening among the children that will do much in time towards drawing the working-man away from the allurements of the public-house.

The sum collected amounted in all to £1,980, which Mr. N. N. Sherwood very kindly undertook to make up to £2,000.

SOCIETIES.

(Temple Show continued from p. 4 of supplement.)

MISCELLANEOUS.

Mr. WILLIAM SYDENHAM, florist, Tamworth, had charming bunches of Violas, including a new variety, named Hawk, with a pale centre, margined with bright lilac; Devonshire Cream, A. J. Rowberry, The Lark, Archie Grant, Niphetos, &c., together with fancy Pansies.

Messrs. ISAAC HOUSE & SON, florists, Westbury-on-Trym, had

Brussels, were shown many healthy plants of several species of economic value, as *Castilleja elastica*, *Hevea brasiliensis*, *Theobroma cacao*, and *Coffea robusta*.

Carnation Lady Gerard is a pale sulphur-coloured variety of the Souvenir de la Malmaison. It was shown by Mr. Walters, gr. to Lord GERARD, Eastwell Park, Kent.

M. M. VAN WYVERN & KRUYFF SARSENHEIM, Haarlem, Holland, exhibited two varieties of Astilbe, under the names Washington, and W. E. Gladstone.

Codisums (Crotons) in many seedling varieties were put up by Mr. ROBT. GREEN, 28, Crawford Street, London, W. They were small plants, but would be useful for decoration.

VEGETABLES.

These were this time rather sparse, though generally excellent in quality. The superb samples with which Messrs. SUTTON & SONS have made the Temple Show habitués familiar, were about their only exhibit on this occasion, and they consisted of two huge pyramids of Peas, set up amidst a bed of *Nemesia*. There were probably two bushels in each pyramid, the pods being secured to a framework as thickly as possible. The varieties were at the bases, Early Giant, and the tops, Bountiful; the pods being singularly fine.

Mr. S. MORTIMER, Swiss Nursery, Farnham, showed six varieties of Cucumbers in a total of fifty-four fruits, all finely grown and perfect samples of their varieties. They included Sutton's Peerless, green, and slightly spiny, length 20 inches; A1, a long, green, smooth form, very handsome; Marvel, fruits 16 inches long, dark green, slightly corrugated; very handsome; Telegraph, Lockie's Perfection, and Tender and-True.

Superb Asparagus in six large bundles came from Mr. A. J. HARWOOD, St. Peters, Colchester, the heads being 9 inches long, with some 8 inches of succulent coloured tops, presenting that admirable condition which Englishmen so much appreciate. We have seldom seen a finer sample of "grass" than was this from Colchester, and its presence leads to the inference that the soil there is good for other things than Roses. From the same town came four bundles of good Asparagus, shown by Mr. W. GODFREY; but the stems were larger, and had in them too much blanched hard material.

Messrs. W. POUPART & SONS, Twickenham, staged some fine Rhubarb in flat bundles, the stems being exceptionally fine and long. Victoria was unusually large, but very clean and well coloured; Linneus, rather smaller and greener; and Hawkes' Champagne had stalks 2 feet long, and of rich deep colour.

Mr. W. L. BASTIN, gr. to A. HENDERSON, Esq., M.P., Buscot Park, Berks, showed with a collection of fruit a few vegetables, including good Royal Osborne Cucumbers, Asparagus, Ne Plus Ultra Dwarf Beans, and Early Snowball Cauliflowers.

Mr. W. H. APHORPE, Cambridge, had a couple of large and bold fruits, and two lesser, but uneven ones, of Cucumber Aphorpe Favourite, the product of a cross between Lockie's Perfection and Royal Osborne. Probably the variety would look better if well grown and selected.

One chief vegetable exhibit was in the form of a group on a centre table in one of the tents, consisting of plants in pots of Early Morn and Daisy Peas, rather sparsely podded, and surrounded by forced dwarf French Bean plants. These were on either side flanked by baskets of good Mushrooms, of Telephone, very fine, and The Daisy and Early Morn Peas; First Crop Potatoes, Holborn Masterpiece Runner Beans, like the old case-knife; large, smooth Earliest-of-All Cucumbers, handsome Duke of York Tomatoes, Royal Osborne Cucumbers, white and runner Beans, and very early forcing Turnips.

It is rather surprising that, relatively to the other features in the show, vegetables should be so few. Some effort should be made by the leading growers another year to present these products more extensively.

Awards given by the Council.

The order in which the names are entered under the several Medals and Cups has no reference whatever to merit, but is purely accidental.

Gold Medal.

Sir F. WIGAN, Bart., Mortlake (gr., Mr. W. H. Young), for Orchids.

Messrs. F. SANDER & CO., St. Albans, for Orchids, Azaleas, &c.

Messrs. J. VEITCH & SONS, Chelsea, for Caladiums, Cacti, and flowering shrubs.

Leopold de ROTHSCHILD, Esq., Gunnersbury House, Acton (gr., Mr. J. HUDSON, V.M.H.), for fruit trees and Water Lilies.

Lord WANTAGE, Lockinge Park, Wantage, for Fruit.

Silver Cup.

Messrs. J. CYPHER, Cheltenham, for Orchids.

Mons. LUCIEN LINDEN, Brussels, for Orchids.

Messrs. CHARLESWORTH & CO., Bradford, for Orchids.

Mr. CHAS. TURNER, Slough, Roses, Pelargoniums, Carnations.

Messrs. J. CARTER & CO., Holborn, Vegetables, Calcisolarias, &c.

Messrs. BARR & SONS, Covent Garden, Tulips, Herbaceous Plants, &c.

Messrs. W. CUTBUSH & SONS, Highgate, Topiary Work, &c.

Messrs. FISHER, SON & SIBRAY, Sheffield, Stove and Miscellaneous Plants.

Messrs. HUGH LOW & CO., Enfield, N., Orchids and New Plants.

Messrs. G. PAUL & SONS, Cheshunt, Roses, Cut Flowers, and Bamboos.

Sir CHAS. PIGGOTT, Bart., Slough, Palms and Crotons.

Messrs. ED. SMITH & CO., Worcester, Clematis and Roses.

Messrs. J. FEED & SON, Norwood, S.E., Caladiums, Gloxinias, &c.

Messrs. W. & J. BIRKENHEAD, Sale, Ferns.

Messrs. J. HILL & SONS, Edmonton, Ferns.

Sir J. PEASE, Bart., M.P., Guisborough, Fruit.

Messrs. T. RIVERS & SON, Sawbridgeworth, Fruit-trees.

Messrs. G. BUNYARD & CO., Maidstone, Fruit.

Messrs. W. PAUL and SON, Waltham Cross, Roses and Rhododendrons.

Mr. T. S. WARE, Ltd., Feltham, Begonias, Herbaceous Plants.

Messrs. H. CANNELL & SON, Swanley, Cacti, Cannas, &c.

Silver-gilt Flora Medal.

Messrs. STANLEY, ASHTON & CO., Southgate, for Orchids.

W. A. GILLET, Esq., for Orchids.



FIG. 107.—CHERRY-TREES GROWING IN POTS, EXHIBITED AT THE TEMPLE SHOW, MAY 23, 1900, FROM THE GARDEN OF MR. LEOPOLD DE ROTHSCHILD.

(From a photograph by J. Newns, Ealing.)

some pretty Violas and fancy Pansies; among the former, Argosy (Stuart), deep clear yellow; Ruthur (Stuart), larger, and a trifle paler than the preceding, but not quite so stout. Golden Fleece, a small, compact yellow, &c.

Messrs. CANNELL & SONS, Swanley, exhibited plants of *Myosotis*, pretty little pyramidal plants in pots, and covered with blooms. They were named *M. pyramidalis*, and were in white, blue, and rose-coloured varieties.

Mr. E. S. TOWELL, Hampton Hill, Middlesex, exhibited plants and flowers of *Pelargonium Fire Dragon*, exhibited at the Temple Show last year, and figured in the *Gardeners' Chronicle* at that time.

From L'HORTICULTURAL COLONIALE (Lucien Linden),

Richardia Primrose League has pale sulphur-coloured spathe, with blotch at base. The foliage is spotted with white. From Mr. S. BIDE, Alma Nursery, Farnham.

Fruit and Vegetable Committee.

Present: Philip Crowley, Esq. (Chairman), and Messrs. H. MARKHAM, W. BATES, JOHN BASHAN, GEO. WYTHES, W. POPE, W. POUPART, J. MCINDOE, E. BECKETT, JAS. SMITH, W. CRUMP, R. PARKER, S. MORTIMER, P. C. M. VEITCH, GEORGE KELL, W. H. DIVERS, F. Q. LANE, M. GLEASON, C. HERRIN, H. BALDERSON, J. WILLARD, H. ELLING, GEO. REYNOLDS, T. COOMBS, W. IGGULDEN, and G. NORMAN.

Mr. H. J. Jones, Lewisham, for Begonias and Cut Flowers.
Mr. W. Rumney, Waltham Cross, for Roses.
Mr. Amos Perry, Winchmore Hill, for Hardy Herbaceous Perennials.
Messrs. G. Jackman & Son, Woking, for Clematis and Hardy Herbaceous Perennials.
Mr. B. R. Cant, Colchester, for Roses.
Messrs. R. & G. Cuthbert, Southgate, for Azaleas.
Mr. M. Pritchard, for Herbaceous Plants.
The Guildford Hardy Plant Nursery, Guildford, for Alpines.
Mr. H. B. May, Edmonton, for Foliage Plants and Roses.
Messrs. J. Waterer & Sons, Bagshot, for Rhododendrons.
R. I. Measures, Esq. (gr., H. J. Chapman), for insectivorous plants.
The Duke of Northumberland, for Nepenthes.
Messrs. J. Cheal & Sons, for Cacti, &c.
Messrs. Wallace, for hardy plants and Lilks.
Messrs. Kelway, for Peonies, &c.
Messrs. Sutton, for Calceolarias.
Mr. J. Russell, for trees and shrubs.
Mr. J. Watkins, for Apples.
Leopold de Rothschild, Esq., Ascott, Leighton Buzzard (gr., Mr. J. Jennings), for Carnations.

Silver Gilt Knightian Medal.

A. Henderson, Esq., M.P., for Fruit and Vegetables.

Silver Flora Medal.

Mr. W. Ieaton, for Decorative Plants.
Messrs. Laing, for Maples and Stove Plants.
Mr. T. Jannoch, for Lilies of the Valley.
Mr. W. Poupart, for Lilies of the Valley.
Messrs. Cripps, for Maples.
Mr. R. Green, for Codiums.
Messrs. B. S. Williams, for Orchids.
Ludwig Mond, Esq., for Orchids.
Mr. G. W. Piper, for Roses.
Messrs. F. Cant & Co., for Roses.
Messrs. Hogg & Robertson, for Tulips.
Messrs. W. H. Rogers, for Rhododendrons.
Messrs. J. James & Son, for Cinerarias.
Messrs. Webb & Son, for Begonias, Gloxinias, &c.
Lord Gerard for Carnations.
Messrs. Backhouse for Orchids, Alpines, &c.
Messrs. Fromow for Maples.

Silver Knightian Medal.

Mr. S. Mortimer for Cucumbers.
Mr. W. Godfrey for Asparagus.
Mr. Harwood for Asparagus.

Silver Banksian Medal.

Marquis de Wavrin, for Orchids.
Messrs. Dobbie, for Sweet Peas.
Mrs. Bodkin, for Cacti.
Messrs. Young, for Cacti.
The Misses Hopkins, for herbaceous plants.
Mr. P. Erselius, for Petunias.
Messrs. Van Waveren, for Aspidias.

*. We are unable, owing to the default of some of our reporters, to complete the account of the Temple Show in this issue, but in our next number we shall allude to the Roses and the Fruits, and shall then be enabled to give a series of illustrations in addition to those given in the present issue.

THE ROYAL NATIONAL TULIP.

THIS was held in connection with the Temple Show, and a very good exhibition resulted, much beyond what was anticipated. The florists' Tulip survives, but the ranks of cultivators have become sadly thinned of late years, and the supporters of the Society are few.

Disimilar Rectified Tulips.—There were four exhibitors of twelve varieties. Mr. J. W. BENTLEY, Stakehill, Castleton, Manchester, was 1st, with bizarres feathered: Masterpiece and General Grant; flamed: Samuel Barlow and Lord Stanley; byblomens feath., Bessie and Bertha; fld., Trip to Stockport and Duchess of Sutherland; roses, feath., Modesty and Pet; fld., Mabel and Annie McGregor. Mr. A. CHATER, Cambridge, was 2nd, his leading blooms were feathered biz. Sir J. Paxton, fld. biz. Sulphur and Samuel Barlow, feath. ro. Annie McGregor, and the same fld. Mr. A. D. HALL, Wye, was 3rd.

With six varieties, Mr. A. D. HALL was placed 1st, he had feath. biz. Attraction, fld. biz. Samuel Barlow, feath. byb. W. H. Parkinson, fld. byb. George Edward, feath. rose Miss Edward, fld. ro. Mabel. Mr. A. CHATER was 2nd, his two best blooms were feath. biz. Sir J. Paxton, and fld. byb. Talisman. Mr. BENTLEY was 3rd.

In another class for six dissimilar bloom*, Miss SCOTT, Malabar House, St. Albans, was the only exhibitor, and was awarded the 1st prize. The best three feathered Tulips came from Mr. BENTLEY, charming blooms, viz., Masterpiece; byb. Bessie, and rose Mrs. Collier. Mr. A. CHATER was 2nd, he had biz. Masterpiece, byb. Adonis, and rose Sarah Headly. Mr. A. D. HALL came in 1st with three flamed varieties, having biz. Dr. Hardy, lyb. Duchess of Sutherland, and rose Mabel.

The breeder or self-coloured Tulips were exquisite, their rich colours contrasting so strongly with their pure bases, either yellow or white. Mr. A. D. HALL had a very fine six; they consisted of bizarre Sulphur and Goldfinder; byblomens Adonis and Maid of Orleans; rose Mrs. Barlow and Rose Hill. Mr. BENTLEY was 2nd, also with very good flowers; he had differing from the foregoing, byb. Glory of Stakehill; and rose Annie McGregor. Mr. A. D. HALL also had the

best three; his winning blooms were, biz. Hepworth's 108; byb. Talisman; and rose Annie McGregor. Mr. BENTLEY was 2nd.

The 1st of the Samuel Barlow Prizes for a pair of rectified Tulips, one flamed and one feathered, went to Mr. BENTLEY, who had Samuel Barlow, fld. biz., and Mrs. Wood, feath. ro.; Mr. CHATER was 2nd, who also had Samuel Barlow and feath. ro. Sarah Headly.

The premier feathered Tulip was byb. Trip to Stockport, shown by Mr. CHATER. The premier flamed byb. George Edward, from Mr. A. D. HALL. The premier breeder was byb. Adonis, shown by Mr. A. D. HALL.

MISCELLANEOUS SOCIETIES.

The Kidderminster and District Horticultural.—This Society held its monthly meeting on the 9th inst., under the presidency of C. N. Bass, Esq. The lecturer was Mr. W. H. Wilson, of Moor Hall, Stourport, and the subject of the lecture was "The Potato and its cultivation." Good sized whole sets were recommended, and at planting time an application of wood-ashes, superphosphate or bone meal to sandy soils. If wood-ashes were not procurable, then kainit. The thinning of the tops to two or three growths was a point specially noted, and the planting of tubers in rows in a north or south direction in order to secure the sun's rays on both sides. Mr. Poole, of Hill Grove Nurseries, exhibited a quantity of flowers of a new scarlet-flowering zonal Pelargonium, the flowers being very large in size and of brilliant colour.

ENQUIRY.

THE BOLTING OF CABBAGES.—Will some of our correspondents who are large growers of early Cabbages kindly state if these have bolted more than usual this year, and if so, whether this state of things exists more in one part of the country than another?

ANSWERS TO CORRESPONDENTS.

BEECH-TREES OVERRUN WITH INSECTS: C. Hodges.—Adelges (Chermes) Fagi, exceedingly minute species of aphid, with soft bodies, that increase with great rapidity, the young insects hatching out in June, and being then covered with a white cottony substance, such as that which you sent us. Tobacco-water and soft-soap in diluted form, or the petroleum emulsion, may be used to kill the aphides, if the trees are small ones.

BOOKS: X. A manual on Land Measurement may be obtained of Mr. Upcott Gill, the Bazaar Office 170, Strand, London, W.C.

CORRECTION: "BRITISH FORESTRY," in our last issue, p. 307, col. a, fourth line from the bottom, for Mr. Stafford Haward, read Mr. Stafford Howard.

EMPTYING HEATING APPARATUS OF WATER: Brockley. Less rusting of the iron-work takes place if the pipes are kept filled with water when not in use. Soft water rusts iron more severely than hard water. As most boilers are incrustated with stony deposits from the water, the iron suffers less than the pipes from rust, but in any case it is better not to run off the water unless it be temporarily for the purpose of cleansing the boiler.

LEAF OF LIME-TREE WITH GALLS: J. Milman. The leaf is overrun with the so-called "Nail-galls," the work of a mite. An example was figured in *Gardeners' Chronicle*, p. 83, July 16, 1887.

LOSS OF CHLOROPHYL IN THE LEAVES OF CHRYS-ANTHEMUMS: Brockley. This loss of colour, due to excess of water in the soil is usually corrected by keeping the plants rather dryer for a week or two; and in obstinate cases by applying sulphate of iron (white vitriol) at the rate of $\frac{1}{2}$ oz. to 1 gallon of water. See *Gardeners' Chronicle*, May 12, p. 292.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—G. T. 2, Fritillaria; 3, Trollius europaeus; 5, Ribes aureum; 6, Veratrum album; 7, your Vine-leaf appears to have been scorched; others not recognised; send better specimens.—R. G. 1, Tellima grandiflora; 2, Saxifraga sponhemica; 3, Arabis carduochorum; 4, Epimedium Muschianum; 6, Saxifraga muscoides var. Rhei.—O. W. D. Prunella viscosa var. ciliata.—W. M. 3, Miltonia flavescent.—J. N. Olley. 1, Cattleya Skinneri, a very fine form; 2, Cattleya intermedia.—W. K. Preston. The pretty spotted flower seems to be an exceptionally fine form of Odontoglossum

× Adrianae, and the other a blotched form of the rather poor type of O. crispum, which grows with it.—T. R. Epidendrum virens.—W. T. R. Barbara vulgaris.—W. T. Smyrnum olusatrum.—Trevoli. Medicago maculata.—Cambrian. Sherardia arvensis.—Thos. H. Akebia quinata.—F. G. L. Crinum Moorei.—Bexley. 1, Prunus Padus; 2, Veronica Traversii; 3, Thua orientalis var.; 4, Ulmus montana var.; 5, Juniperus sinensis; 6, Eonymus radicans.—Ratcliffe. 1, Ulmus montana; 2, Denstelia tenera; 3, Pyrus Malus floribunda.—A. Tabernamontana coronaria. The small white spots are quite common to the plant, and they are not the ova of insects. The bursting of the tube also is common in spring.—J. J. 1, Epimedium pinnatum; 2, Epimedium Muschianum; 3, Acacia dealbata; 4, Prunus triloba fl. pl.—R. T. Dendrobium × Wiganis and Anthericum lineare variegatum.—Miss Croker. Staphylea pinnata.—Label misplaced. 2, Symphoricarpos racemosus (Snowberry); 5, Anthericum lineare variegatum.

SPRUCE FIR: A. Scott. The work of some rodent, teeth-marks being visible on the bared wood. The tap-root is dead, and consequently the plant would be readily overturned by the wind, or by large animals pressing against it. An examination of the ground would probably disclose the burrowings of rabbits, rats, or field-mice. You should have sent us the entire roots, and not merely the root-stock.

TOMATO DISEASED: Foreman. The plant sent is attacked by a fungus, Peronospora Lycopersici, which has a resemblance to the ordinary murrain of the Potato, and the best remedy to employ as against that and the Tomato disease is the Bordeaux Mixture, made according to the formula often given in these columns. Wireworm, if present, and we failed to find any, have not done any harm to the plants. As for eelworms, these, although you tell us you saw some, are indistinguishable by the naked eye, and the appearance of the roots does not indicate their presence in the plant sent.

TRAVELLING EXPENSES OF A GARDENER ON ENTERING A NEW SITUATION: X. Y. Z. The payment of these is entirely a matter of arrangement between employer and gardener; and it is not exactly similar with the conditions obtaining in indoor domestic service, as you seem to infer, the latter being most generally single persons, with perhaps the exception of the butler. We would dissuade you from going to law on the matter, unless a written agreement to pay the expenses exists.

UNISEXUAL STRAWBERRY PLANTS: T. C. Unisexuality of the flowers is an original condition of these plants, although by cross-breeding there is little tendency in varieties to revert to this state. One garden variety, viz., Hautbois, is persistent in this respect, and no crop is obtained unless care be taken to plant runners from beds, the plants in which are male and female, and uniformly bear fruit abundantly. Yours is merely a case of reversion, and you would act wisely to obtain runners for the making of new beds of the varieties which have failed, from some trustworthy source. No blame attaches to the nurseryman who supplied the plants.

VINE-LEAF DISCOLOURED: G. T. Mechanical injury—scalding, probably, from not affording timely ventilation in the morning hours, or upon sudden bursts of sunshine. A little neglect in this direction, especially in modern vineries, with their large panes of glass, and practically airtight construction, works much mischief at this period of the year. The leaf sent indicates a Vine in great vigour, it being of more than ordinary size and substance.

COMMUNICATIONS RECEIVED.—R. E. Tyson.—D. Q., 438.—J. Hoog.—W. T.—A. O'N.—Merryweather & Sons.—Todd & Co.—J. Roberts.—W. K.—E. C.—Bristolian.—A. C. F.—H. H. C.—J. S.—W. G. S.—R. Holmes.—H. H. D. and Ed. M.—Attwood & Binns.—J. E. L.—W. B. (next week). A. R.—A. B. R. & Co.—W. S.—A. J. K.—Anchusa italica.—W. G.—C. H. (there was no enclosure).—D. Q.—A. R. Fr. Nica.—Ignoramus.—J. Weeks & Co.—A. W.—W. Dawes.—J. E. L.—B. H.—Leeds.—B. H.—F. B.—G. Henley.—H. W. Newport.—Turner Bros.—J. W.

SCETCHES PHOTOGRAPHS, &c., RECEIVED WITH THANKS.—T. Cranwell, Auckland, N.Z.

BIRTH.—Born, HANSEN, in Berkeley, California, March 13, 1900, to the wife of GEORGE HANSEN, a son.

(For Markets and Weather, see p. x.)

THE ROYAL HORTICULTURAL SOCIETY.

THE TEMPLE SHOW.

MAY 23, 24, 25.

THE great annual horticultural event of the year—the three days' flower show held by permission of the Benchers in the gardens of the Inner Temple—took place on Wednesday last and the two following days. The day broke threateningly, and sharp showers fell at intervals; but the weather exercised little influence on the attendance of the visitors, of whom great numbers were present, there being nearly as many as on the first day last year. The receipts at the gates, however, on Wednesday were, we believe, about £100 less than last year. The varied exhibits, as numerous as usual, showed, if anything, greater variety, and several improvements in the staging and general arrangements were observed, especially amongst exhibits placed out-of-doors. The arrangements made by the Superintendent, Mr. Wright, worked most smoothly. Our reporter's remarks are supplemented by ourselves on p. 328.

Orchid Committee.

Present: Harry J. Veitch, Esq., in the chair; and Messrs Jas. O'Brien (Hon. Sec.), De B. Crawshaw, G. W. Law-Schofield, H. J. Chapman, J. Douglas, E. Hill, A. Hislop, H. A. Tracy, R. Brooman-White, H. T. Pitt, J. Jaques, C. Rochford, W. H. Young, F. J. Thorne, W. Cobb, J. T. Gabriel, H. Little, J. G. Fowler, J. Colman, C. Winn, E. V. Low, and W. B. Latham.

The display of Orchids was quite equal to any made at the Temple in any previous year, and, as the list of Awards proves, contained more plants above the average in point of merit.

Sir Trevor Lawrence, Bart., Burford (gr., Mr. W. H. White), as usual, had one of the most important groups, which was arranged on one side of the central staging in the large tent, and containing over 100 distinct species and varieties, all presented in very fine condition and well flowered. In the back were *Epidendrum raiicans*, with fifteen heads of scarlet flowers; fine specimens of the white *Calanthe veratrifolia*, and elegant sprays of the showy *Oncidium*, &c., around them being many remarkable specimens, among which were noted *Miltonia Bleuana nobilior*, with fifteen flowers; *Aerides Houletianum*, with three fine spikes; a fine set of the brilliant *Masdevallias* of the coccinea class; many pretty hybrid *Epidendras*, *Laelio-Cattleya* × *Highburyensis* and *L.-C.* × *Hippolyta*, and fine varieties of the showy *Odontoglossums*, *Cattleyas*, *Laelia purpurata*, &c. In the centre of the group was a pleasing collection of pretty "botanical" Orchids, among which were noted *Dendrobium Jerdonianum*, with many orange-coloured sprays; *D. lingueforme*, with slender white flowers; *Masdevallia O'Brieniana*, and other pretty *Masdevallias*, an attractive collection of *Anacochilus*, *Pleurothallis ornata*, *P. venosa*, and *P. stenosepala*; *Polystachya pubescens*, and *P. cerea*; *Dendrobium Victoria Regina*, *Oncidium olivaceum*, *O. Phalaenopsis*, the curious white *Campanella uliginosa*, *Saccolabium gemmatum*, *Cirropetalum Collettii*, *Maxillaria Houtteana*, and a great number of other rare species.

Sir Frederick Wigan, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young), had an equally fine group, in the centre of which was a fine plant of the beautiful *Miltonia vexillaria Memoria G. D. Owen*, which was one of the best plants in the show, the dark claret-red mark on its white ground giving the clear rose-pink flowers a great attraction; it bore twelve flowers. *Odontoglossums* were also fine in this group, the kinds well represented being the forms of *O. crispum*, *O. Halli leucoglossum*, *O. polyanthum*, a very fine *O. Uro-Skinneri*, *O. × Wilckeanum*, *O. Oerstedii*, with thirty flowers; *O. citrosimum punctatissimum*, *O. × Andersonianum*, &c. In the back were fine examples of the bright yellow *Oncidium Marshallianum*, and *O. ampliatum majus*, some noble specimens of *Cymbidium Lowianum*, bearing together nearly forty grand spikes. In the group were very showy *Masdevallias*, the fine *Cypripedium* × *W. H. Young*, two good *C. bellatulum album*, some fine masses of the best forms of *C. barbatum*, *C. × Henry Graves*, *Cattleya Skinneri alba*, a grand set of varieties of *C. Mossiae*, of which the best were *C. M. Lady Wigan*, *C. M. fulgens*, *C. M. Beatrice*, and *C. M. Mrs. Egerton Grey*; *C. Mendellii* *Lowii*, white with blue-tinted lip, and other fine *C. Mendellii*; good *Laelia purpurata*, *Cymbidium Lowianum* concolor, with four spikes; *Epidendrum falcatum*, with sixteen flowers; *E. Wallisii*, with over forty flowers; *Laelio-Cattleya* × *Canhamiana Iolanthe*, *L.-C.* × *Schilleriana*, *Miltonia* × *Bleuana*, several good *Phalaenopsis*, &c.

Following on the same side, W. A. GILLERT, Esq., Oak Lodge, Eastleigh (gr., Mr. Carr), staged a group of excellently-flowered plants, in which the forms of *Cattleya Mossiae* were very conspicuous. At the back were the violet-coloured *Odontoglossum Edwardi*, tall plants of *Oncidium ampliatum*, *O. sphacelatum*, &c., good *Odontoglossum crispum*, *O. polyanthum*, *O. luteo-purpureum*, and other species.

Then followed a neat group of varieties of *Odontoglossum*

crispum staged by M. FL. OLAKS, Etterbeck, Brussels, in which were two very pretty blotched forms.

M. A. A. PEETERS, St. Gilles, Brussels, staged a small group of rare Orchids, in which were a grand plant of a light rose-coloured form of *Eulophiella Peetersiana*, *Laelio-Cattleya* × *Canhamiana superba*, very dark in colour; *L.-C.* × *Ceres* (*C. Mossiae aurantiaca* × *L.-C.* × *Phoebe*); *Odontoglossum crispum Stanley*, *O. c. punctatissimum*, and other fine spotted forms, and some new *Laelio-Cattleyas* enumerated in the list of Awards.

M. JULES HYE-LEYSEN, of Ghent (gr., Mr. Coen), showed *Laelio-Cattleya* × *General Baden-Powell*, *L. tenebrosa* × *C. Lawrenceana*, with flowers of a dark rose-purple, with glowing reddish-purple lip; and *Odontoglossum* × *Adriana Mascotte*, a finely formed flower evenly spotted.

M. CHAS. VUYLSTEKE, Loochristy, Ghent, showed varieties of his beautiful *Odontoglossum* × *Rolfes*, and one of *O. × crispo-Harryanum*.

H. T. PITT, Esq., Rosalyn, Stamford Hill (gr., Mr. Thurgood), showed his pretty, bluish-white *Cattleya intermedia Rosalyn* variety, a near approach to which was also shown by ELIJAH ASHWORTH, Esq., Harefield Hall, Wilmslow (gr., Mr. H. Holbrook), who also showed four remarkable, finely spotted *Odontoglossums*.

The remainder of the space on the same side was filled by Messrs. STANLEY, MORRIS & ASHTON, of Southgate, whose group was remarkable for the uniform excellence of the many varieties of *Cattleya Mossiae*, of their importation the most striking being *C. M. Sir Thomas Lipton*, a large white flower with a slight rose-coloured freckling in the lip; and *C. M. Wageri*, a grand pure white flower, with pale yellow disc to the lip; the *Miltonia vexillaria*, especially the Southgate variety, and the forms of *Laelia purpurata*, were also excellent, and the whole tastefully arranged.

Messrs. F. SANDER & Co. arranged a noble group on the other side of the tent; the whole of their exhibits being excellent, both in regard to culture and flower. Some plants of their form of *Laelio-Cattleya* × *callistoglossa excelsa*, which had as one of the parents a fine form of *Cattleya gigas Sanderiana*, represented it as one of the shrewdest of hybrids yet raised. In the group, the forms of *Cattleya Mossiae* and *C. Mendellii* were superb, and among the varieties of *C. Schroderae*, *C. S. The Baroness*, with delicate bluish-white flowers, with a rose-coloured blotch on the lip, was very distinct; and *O. × excelsa*, *O. × crispo-triumphans*, *O. × Adriana*, *O. × Ruckeriana*, and other hybrids; and the fine forms of *O. crispum* were specially good. Other things noted were the feathery-lipped *Bulbophyllum barbigerrum*, some fine *Cattleya Warneri*, richly-coloured *Miltonia vexillaria*, *Cypripedium* × *Gertrude Hollington*, *Miltonia* × *Bleuana grandiflora*, and a very distinct form of *Cattleya Schilleriana*, with uniform, chestnut-brown sepals and petals.

The MARQUIS DE WAVRIN, Somerghem, Belgium, showed a group of excellent varieties of *Cattleya Mossiae*, *C. M. Rouseleana*, and *C. M. fastuosa*, being very fine dark forms; and *C. M. Olivacea*, a delicately-tinted, light variety.

Messrs. CHARLESWORTH & Co., Heaton, Bradford, staged an extensive and effective group, in which all the showy Orchids of the season were well represented. The forms of *Cattleya Schroderae* were specially good; *C. S. Heatonensis*, a delicate, lavender-coloured flower, and *C. S. albena*, and some few others being very distinct. *Odontoglossums* were also well shown; and *Masdevallia* × *Pourbaixii*, *Phaius* × *Crawshawianus*, *Humboldtia* × *assamensis*, a very fine *Cypripedium Rothschildianum*, and *Laelio-Cattleya* × *Lady Miller* (*C. granulosa Schofieldiana* × *Laelia cinnabarina*) were among the minor things noted.

Mr. JAS. CYPHER, Cheltenham, had a fine group of good plants, grown with his usual skill, and staged effectively. It consisted principally of good *Cattleyas*, *Laelia purpurata*, varieties of *Dendrobium nobile*, &c. Specially noted were *Cattleya Mendellii* *Oddity*, of an uniform pale lavender colour, the abnormal lip being elongated, and exhibiting the same colour as the petals, with the exception of a narrow dark yellow line up the centre; *C. Mossiae grandis*, and *C. M. Distinction*, both showy; a fine *Odontoglossum* × *Loochristy*, of perfect shape, yellowish, evenly blotched with purple-brown. The group was edged with scarlet *Sophronitis*, *Ada aurantiaca*, and other showy dwarf species.

Messrs. HUGH LOW & Co., Bushhill Park, well furnished out the side with a splendid group well set up. Remarkable among the many good things were *Cypripedium Lawrenceanum* *Hyeannum*, *C. × Aylingi*, *Low's* variety; *Phalaenopsis* × *Lady Rothschild*, *Odontoglossum crispum xanthotes*, *Low's* variety, with bluish-white sepals and petals; *O. c. Britannia*, a finely-blotted flower; *Cattleya Mendellii* *Mafeking*, a very showy flower; and *Cymbidium* × *l'Ansoni*, a showy natural hybrid, with large ivory-white flowers, showing reddish lines on the sepals and petals, seemingly indicative of *C. giganteum*.

On one side of the adjoining tent, M. LINDEN, L'Horticulture Coloniale, Parc Leopold, Brussels, had a superb display of *Odontoglossums*, extending some 60 feet in length, and in which were a most bewildering series of varieties, especially of the finely-blotted class, and which seemed to merge the spotted forms originally introduced by the firm, and named *O. × Adriana*, into the larger class known as true *O. crispum*. Some of the best were awarded Certificates, and of the others noted among many equally beautiful were *O. crispum Domino*, clear white, tinged with rose at the back, and distinctly blotched; *O. gloriosum aureum*; a very fine lot of *O. × Adriana*, *O. × Andersonianum*, and other hybrids; and some excellent *Miltonia vexillaria*.

LUDWIG MOND, Esq., The Poplars, Avenue Road, Regent's Park (gr., Mr. J. O. Clarke), had a very effectively arranged group of well-flowered Orchids, among which the *C. Mendellii*,

C. Mossiae, *C. Schroderae*, *Odontoglossum crispum*, &c., appeared to advantage, excellent varieties of them being staged. Also in the group were the fine old *Brassia verrucosa*, *Dendrobium densiflorum*, and other favourite species.

Messrs. B. S. WILLIAMS & Son, Holloway, continued with a good group in which the *Vanda suavis* and *V. tricolor* at the back formed a telling feature; *Calanthe veratrifolia*, *Laelia purpurata*, *Cattleya Mossiae*, &c., were also good.

Messrs. BACKHOUSE & Sons, York, finished out the stage with a neat little group, in which the showy *Laelia purpurata* *Backhouseana*, with purple-veined petals, was the best plant; and other forms of *Laelias*, *Cattleyas*, and *Odontoglossums* were good.

Messrs. FISHER, SON, & SIBNEY, Handsworth, Sheffield, also in their group had some good *Cattleyas*, *Laelia purpurata*, and one of the best plants of the large, wax-like, white *Chysis bracteosa*, with a dozen or so of flowers seen of late years.

Awards.

FIRST-CLASS CERTIFICATES.

Laelio-Cattleya × *callistoglossa excelsa* (*C. Warszewiczii Sanderiana* × *L. purpurata*).—From Messrs. F. SANDER & Co. The largest and most richly coloured form yet seen. Sepals and petals bright rose coloured, the broad front of the lip ruby-purple, throat rich yellow.

Laelia purpurata Littleiana.—From HENRY LITTLE, Esq., Baronshalt, Twickenham. Flowers pure white, the lip having rose and purple markings on each side, and fine dark lines on yellow in the throat.

Odontoglossum × *Adriana* "Ernest Ashworth".—From ELIJAH ASHWORTH, Esq., Wilmslow (gr., Mr. Holbrook). A perfectly-formed white flower, evenly spotted with brown.

Odontoglossum × *Adriana* "Arthur Ashworth".—From E. ASHWORTH, Esq. (gr., Mr. Holbrook). Flowers of fine substance, pale yellow, with large and small brown blotches arranged in circular form.

Odontoglossum × *Souvenir de Victor Hye-Lebrun* (*Harryanum* × *luteo-purpureum*).—From M. JULES HYE-LEYSEN, Ghent (gr., Mr. Coen). A fine, well-expanded flower, having a general resemblance to a large form of *O. Harryanum*. Sepals and petals whitish, with fine purple markings; lip large, white, with violet blotches at base.

Odontoglossum × *Rolfes optimum* (! *Harryanum* × *Pescatorei*).—From Mr. CHAS. VUYLSTEKE, Ghent. Flower of fine form and substance, whitish barred with purple, lip broad and flat, white, with purple markings.

AWARD OF MERIT.

Cattleya Mossiae Rouseleana.—From LE MARQUIS DE WAVRIN, Somerghem, Belgium. A large flower with warm rose sepals and petals, and rich crimson markings on the lip.

Odontoglossum crispum Confetti.—From M. LINDEN, Brussels. Flower white, evenly blotched with purple—very distinct.

Odontoglossum crispum radiatum.—From M. LINDEN, Brussels. Flower cream white, with ray-like uniform spotting of red-brown.

Odontoglossum × *Rolfes ardentissimum*.—From M. C. VUYLSTEKE, Ghent. Flowers whitish, of fine shape, blotched with purple.

Cattleya Mossiae "Our Queen".—From Messrs. F. SANDER & Co. An improvement on the best form of *C. M. Reineckiana*. Flowers large, pure white, with light violet freckling inside the broad white, crimped margin of the lip.

Cypripedium × *Mary Beatrice* (*Goverianum magnificum* × *bellatulum*).—From G. W. LAW-SCHOFIELD, Esq.; and Messrs. CHARLESWORTH & Co. Flowers large and finely formed, purplish-rose, with rose-purple margin to the lip, and dark spotting on the petals.

Lyrastis × *G. S. Ball* (*plana Massenaiana* × *Skinneri*).—From Messrs. CHARLESWORTH & Co., Bradford. Flower of the size of that of *L. Skinneri*, but of an uniform reddish-rose, lip with crimson markings.

Cattleya Mossiae, Hassell's Variety.—From Messrs. STANLEY-MORRIS & ASHTON, Southgate. A grand pure white flower, with chrome-yellow markings on the lip.

Laelio-Cattleya × *Masangeana* (*L. tenebrosa* × *C. Schilleriana*).—From M. A. A. PEETERS, Brussels. Sepals and petals bronzy-red, lip rich ruby-crimson.

Laelio-Cattleya × *Herode* (*C. O'Brieniana* × *L.-C.* × *elegans Turneri*).—From M. A. A. PEETERS, Brussels. A pretty and distinct hybrid; sepals and petals light rose coloured, lip bright ruby-red in front, with a yellow and white disc, and rose-coloured exterior to the side-lobes.

Odontoglossum crispum Mrs. F. Peeters.—From M. A. A. PEETERS, Brussels. A very fine flower, richly blotched with purple, and shaded with rose.

Odontoglossum crispum Victoria Regina.—From M. A. A. PEETERS, Brussels. Flower of fine form, petals fringed, blotched with reddish-purple.

BOTANICAL CERTIFICATE.

To *Calanthe veratrifolia*, *Dendrobium hercoglossum*, and *Dendrobium candidum*, from Sir Trevor Lawrence, Bart.

CULTURAL COMMENDATION.

To Mr. W. H. White, gr. to Sir Trevor Lawrence, Bart. for a fine specimen of *Miltonia* × *Bleuana nobilior*.

To M. A. A. PEETERS, Brussels, for a specimen of *Eulophiella Peetersiana*.

Floral Committee.

Present: W. Marshall, Esq., Chairman; and Messrs. W. Howe, C. R. Fielder, W. Bain, C. J. Salter, J. H. Laing, S. A. de Graaf, G. Reuthe, W. J. James, Harry Turner, H. J. Cutbush, H. Selfe Leonard, H. B. May, C. E. Shea, R. Wilton Ker, J. Jennings, Chas. Blick, J. W. Barr, E. H. Jenkins, T. W. Sanders, C. E. Pearson, E. Molyneux, O. Thomas, J. H. Pitt, Chas. Jeffries, H. J. Jones, Ed. Mawley, and Jas. Hudson.

Awards to Novelties by the Floral Committee.

Begonia, Lord Roberts.—A beautiful Picotee-like variety, white with very heavy rose edging, form perfect. From Mr. T. S. WARE, Ltd. (Award of Merit).

Begonia, Mr. W. G. Valentina.—A brilliant scarlet Camellia-like flower of good form. One of the brightest Begonias. From T. S. WARE, Ltd. (Award of Merit).

Begonia, Mrs. Hall.—A large double flower with salmon-pink coloured petals; centre of flower paler in colour. From Messrs. J. LAING & SONS (Award of Merit).

Bougainvillea Maud Chittleburgh.—This might very properly be described as a *B. glabra gigantea*. In size and colour it is a glorified *B. glabra*. From Colonel Rous, Worstead House, Norwich (gr., Mr. Chittleburgh), who obtained the variety from seed (Award of Merit).

Carnation Herbert J. Cutbush (see fig. 108).—A brilliant crimson border variety, of large size and much merit. From Messrs. Cutbush & Sons (Award of Merit).

Chamaelirion carolinia.—Shown by Mr. T. S. Ware, Ltd., Feltham (Awarded a Botanical Certificate).

Edrianthus dalmaticus.—A very well-known, large-growing species, from Messrs. JACKMAN, Woking (Award of Merit).

Echium callithyrsus.—This was shown by the Hon. JOHN BOSCAWEN, Tregey, Perranwell, Cornwall. Four beautiful spikes of bloom were shown that had been grown out-of-doors (Award of Merit).

Glaxinia (strain).—An Award of Merit to varieties from Mr. J. J. UPTON. These are described in another column.

Lilium Thunbergianum Orange Queen.—A beautiful variety of this popular Lily, shown by Messrs. WALLACE & CO. (Award of Merit).

Enothera speciosa rosea.—A rose-coloured variety of this pretty species, from Mr. AMOS PERRY, Winchmore Hill, London, N. (Award of Merit).

Pelargonium Mrs. J. D. Day.—An Ivy-leaved variety, with scarlet, semi-double flowers, from Mr. H. J. JONES (Award of Merit).

Peony Lady Sarah Wilson.—A "tree" variety, with exceeding large flowers of two shades of pink colour, from Messrs. KELWAY & SON (Award of Merit).

Schizanthus "Wiscotensis."—Here was a strain of *Schizanthus*, with rather smaller flowers than the type. They are very variable in colour, but generally pink, yellow, or deep brown, with white. The plants in flower formed pretty little pyramids of slender growth and abundant flowers. They were greatly admired. From Messrs. HUGH LOW & CO. (an Award of Merit).

Tulip Mabel (rose breeder) and T. Mrs. Moon, a large buttercup-yellow coloured flower, with pointed segments, from Messrs. BARR & SONS (Award of Merit).

Tulipa Batalint, a pale, yellow-coloured species, from Messrs. BARR & SONS (Award of Merit).

Tulipa galatica, from M. O. G. TUBEROEN, Jr., Haarlem.

CUT FLOWERS.

This consisted of seven Classes for cut flowers, but it is not customary, as one would reasonably suppose it would be, that certain subjects would be found grouped together for purposes of comparison. Some exhibitors prefer to mix up plants with cut flowers in a very confused manner, and without much regard to effect. This makes the work of settling the awards a difficult matter, and there is reason to fear some of them are made in a haphazard fashion because fair comparisons cannot be drawn. Collections of cut flowers were not so numerous as usual, owing, doubtless, to the incidence of the season; still there was much of a common character in some of them, and it is to be feared this feature will be continued until a better system of competition is adopted. If the Council were to offer Awards for collections, combining novelty and quality with effective arrangement, decided improvements in the decorative aspects of the show would be certain to result.

Carnations.—Of these there were but very few in a cut state. They were in the collection of Messrs. JAMES CARTER & CO., of Holborn, and were shown as seedlings, and had well developed blooms of good quality.

Hardy Perennials.—A wide latitude is given to this term, as bulbous plants are included, and some subjects of a biennial character. Commencing with the most eastern of the tents, the first collection to engage attention was that from Messrs. RICHARD SMITH & CO., of Worcester. Apart from the general good quality of the exhibits, this collection was set up in a very tasteful manner, and finished off with a front margin of appropriate drooping plants. The genus *Trollius* was well represented by European and its varieties; *T. Fortunei*, *T. caucasicus*, *T. Denayansii*, &c., *Tiarella cordifolia*, the lavender *Phlox canadensis*, *Camassia esculenta*, various showy Tulips, *Banunculus aconitifolius* fl.-pl., &c., it was a group which well deserved inspection.

Mr. M. FRICHARD, Nurseryman, Christchurch, had as usual a choice assortment of hardy subjects, including various

forms of *Iris*, *Trollius* in variety, the charming double-white *Saxifraga granulata*, fl.-pl., which is not nearly so much grown as it deserves to be—and we can recall the time when this subject was employed for filling beds in old-fashioned gardens; two single charming *Pyrethrums*, viz., *Agnes Mary Kelway*, and *roscum nanum*, forms of *Geum montanum*, *Orobis vernus*, *Campanula daurica*, finely coloured; *Polemonium Richardsonii*, forms of *Aquilegia*, the double form of *Arabis albidia*, known as *Corbille d'Argent*. Tulips in variety, including the elegant *T. persica*, *Myosotis rupicola*, *Anubria*, *Souvenir de Wm. Ingram*, in very poor character, &c.

Mr. T. JANNICH, Florist, Deringham, had bunches of his giant Lily of the Valley, with their foliage backed up by newer forms of Lilies—a pleasing arrangement, much appreciated.

Langport. Foremost among them were several recently-named novelties, such as *Lady Sarah Wilson*, delicate bluish-pink (Award of Merit); *Lord Roberts*, a large bluish variety; *Lady White*, a large single white; *General Buller*, crimson; *Sir George White*, dark crimson; *General Macdonald*, *Lady Georgina Ouzon*, *Lord Methuen*, &c. Bunches of *Paeonies* found a place in other collections.

Tulips.—Messrs. HOOD & ROBERTSON, Nurserymen, Dublin, staged a collection having massive flowers of stout build. Prominent were *Mrs. Knightly*, a large yellow self; *Zomer-schonn*, salmon-rose, flaked with white; *Gesneriana lutea*, pale yellow; *flava*, yellow; *Columbus*, crimson and yellow; *Belletiana*, *Sunset*, *Picotee*, *Yellow Queen*, a scarce but very fine variety, &c.

Mr. GEO. EDMOND staged a small collection of florists' varieties, breeders, and rectified, but they were unnamed.



FIG. 108.—BORDER CARNATION "HERBERT J. CUTBUSH"—BRILLIANT CRIMSON. GIVEN AN AWARD OF MERIT AND SKETCHED AT THE TEMPLE SHOW.

Mr. H. J. JONES, Ryecroft Nursery, Lewisham, had a miscellaneous collection; most prominent were various forms of late Tulips, including the gaudy Parrot types; *Lilium Harrisii*, *Ixias*, *Early Gladioli*, Spanish and other Irises, the fragrant single Jonquil, and Double White Narciss; *Camassia esculenta*, and its white variety, *C. Leichlinii*, &c.

Messrs. PAUL & SON, the Old Nurseries, Cheshunt, had in their collection a number of *Rhododendrons*, including one of the *R. Fortunei* type, named *Mrs. C. Butler*, of a pale rosy-pink colour, the flowers large and the truss massive. Parrot and other Tulips, *Arnebia echioides*, *Cytisus incarnatus* purpureus, *Corydalis nobilis*, various forms of *Orobis*, *Anemone macrantha*, *A. palmata* albiflora, &c.

Messrs. WALLACE & CO., Colchester, had Tulips in variety, including brilliant Parrot types; *T. Belletiana* *Sunset*, *T. retroflexa*, &c.; Spanish and other Irises, &c.

Messrs. BARR & SON, King Street, Covent Garden, W.C., had as usual a large and varied collection of cut flowers; a very fine lot of Tulips was one of the leading features.

Paeonies.—A fine collection of plants in pots, and also of cut blooms, came from Messrs. KELWAY & SON, The Nurseries,

Messrs. T. S. WARE & CO., LTD., Feltham, had a small collection of Darwin varieties in bold bunches; this included the florists' varieties, both in the breeder form and rectified, Parrot varieties, and late Darwin forms in abundance. *Narcissi* *Camassias*, forms of *Centaurea moritziana*, *Cytisus*, *Turban Ranunculus*, *Geums*, *Iceland Poppies*, *Iris*, *Paeonies*, &c.

CALADIUMS.

Messrs. PEED & SON, The Nurseries, West Norwood, showed a capital group of very handsome plants, with the leaf-colouring finely brought out. Of older varieties we may name *John Peed*, deep crimson leaf, with a margin of dark green; *Charlemagne*, a pink leaf, with crimson veins and ribs; *Gaspard Crayer*, crimson, and a green edge; *Dona Carmen Macedo*, deep pink, with narrow edge and veins, ribs of a green tint; the glowing crimson *Triomphe de Comte Roncador*, still unsurpassed in its way; *Mrs. Harry J. Veitch*, a leaf with shades of crimson intermixed with green; *Henry Dixon*, very pale green, with pale crimson blotches sparsely distributed; *Duchesse de Montmart* is somewhat similar to the last-named, but it is destitute of the

crimson blotches; Comtesse de Maille is a handsome form, with intense crimson-tinted ribs and veins on a white-and-green ground. Smaller plants of some, being of recent introduction, comprised the following varieties, Gerard Dow, a crimson and bronze leaf, very pleasing; La Lorraine, leaf rosy-crimson, with a thin green margin; Oriflamme, similar to the last, but with a wider margin; Emil Neubert, deep reddish-bronze leaf, with crimson ribs; Baron Adolphe de Rothschild, a leaf of crimson tint, with pink blotches; H. J. Chapman, pale rose and pale green; Princess of Teck, crimson veins on light rose-tinted ground, and yellow-green margin, a very distinct variety.

Messrs. J. VEITCH & SONS, LTD., Royal Exotic Nursery, Chelsea, exhibited an extensive group and collection of varieties of Caladiums, consisting of varieties other than those noted in Messrs. Pez's group. Of a distinct and pleasing colour, were Guillaume Mar, a pale pink leaf with creamy white ribs and veins; Princess Royal, a leaf having a light green ground, and ribs of a crimson tint; Lady Mosley,

frame. The plants were in perfect health, as was indicated by their dark green and generally numerous leaves and flowers. All of them are perfectly hardy species, with the exception of *N. stellata*, the blue-flowered Water-Lily. The species shown were Adrian, a crimson; Gloriosa, deep crimson; odorata sulphurea grandiflora, this plant had but one bloom, yellow; Seignouretti, rose-coloured; Ellidiana, rich rose colour; sanguinea, deep crimson; Marliacea carnea, pale flesh, a large bloom; M. chromatella, the plant not in flower; Flammea, rosy purple; Candida, a small-flowered species, white; tuberosa, not in flower; odorata rosea, not in bloom; Merliacea albida, large white flowers; lucida, pale pink, a free flowerer; Robinsoni, small pale purple flowers. The plant of *N. stellata* shown possessed sixteen fully opened flowers of a charming sky-blue tint, with a yellow base, and stamens of the same tint. *Menyanthes trifoliata*, *Villarsia nymphaeoides*, and *Aponogeton distachyon*, were likewise shown as grown in tubs of water. Some of these are shown in the illustration on p. 381, taken by Mr. J. News, Ealing.



FIG. 109.—MILTONIA VEXILLARIUM "MEMORIA G. D. OWEN." EXHIBITED BY SIR F. WIGAN, BART., AT THE TEMPLE SHOW (SEE P. 1 OF SUPPLEMENT).

leaf with pink ground colour, and ribs of crimson marked irregularly, with blotches of green colour; Ville de Laon crimson, with blotches of a paler tint; Lady Stafford Northcote, a deep crimson leaf, with ribs deeper tinted; Pantia Ralli, a fairly well known handsome variety; Reine de Danemark, creamy-white ground, with green edging, and crimson ribs. A very pretty and taking Ibis; Comte de Germiny, The Mikado, Golden Queen, a large, pale green leaf; Mrs. J. E. Veitch, Rose Laing, an immense leaf of a creamy-white, suffused with pink over the greater portion of the leaf surface; H. E. Williams, Marquis of Camden, one of the best; Madame d'Halloy, white, with red ribs and reticulations; candidum bicolor sericeum, leaf green with a crimson centre; Princess of Teck, Princess Olga, crimson, with faint pink spotting; Madame Schmidt, Louis A. Van Houtte, Gaspard Crayer, Comtesse de Brosse, rosy-red ribs and veins on a field of pale pink. The plants, more especially the older varieties, measured from 8 to 5 feet in diameter of the crowns of foliage.

WATER LILIES.

LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton (gr., Mr. J. Hudson), exhibited in the open air a very remarkable arrangement of Nymphaeas, which he has been cultivating in tubs of water placed in a tank in a span-roofed

dense growing, creeping species, apparently a good subject for covering damp surfaces; Asplenium Hilli, a small beauty of stiff habit; Adiantum capillus-veneris imbricatum, a variety with overlapping pinnae, and with much prettiness; Ad. Hendersoni, the young fronds of a bronze tint; Davallia tenuifolia stricta, Pteris Childsii, Brainea insignis, &c.

Mr. H. B. MAY, Dyson's Lane Nurseries, Upper Edmonton, exhibited Ferns freely in his mixed group of plants, and good examples of the following were observed, viz., Platycerium grande, a large perfect piece; Nephrolepis exaltata, Gleichenias in variety, Adiantum fasciculatum, Ad. Regine, Ad. setulosum, a very close-growing species, admirable as a covering for damp walls, &c.; Gymnogrammas of species; Pteris longifolia Mariessii, P. serrulata gracilis multiceps, Asplenium Mayi, &c.

CACTI.

A very remarkable, attractive, and curious group of these interesting plants came from Messrs. CANNELL & SONS. Very prominent amongst them being large specimens of the golden Echinocactus Grusoni, covered with long hooked spines. Also Cereus serpentinus, columnar and hairy. Echinocactus cylindricus, E. chrysacantha, intensely spiny, and even more so is E. versicolor, the spines being three inches long, and hard. Opuntia citriformis is well-named the Grizzly Bear, and very hairy. Agave Victoria Regine, a massive dwarf form, and many Opuntias, Mammillarias, and Cereuses. A charming plant in flower was Mammillaria Stella aurea, with an inflorescence dense and red.

Messrs. YOUNG & CO., Stevenage, had a small collection, the chief forms being Echinocactus polycephalus, E. viridescens, &c. The naming, however, was very imperfect.

Visitors to the Temple Show are getting the habit of looking for Messrs. JAS. VEITCH & SONS' Phyllocactuses. They always form a conspicuous feature in one of the tents, but never has there been so good a group as on this occasion. Amongst the numerous varieties, the following were very charming; Adonis, pink; Epirus, a much deeper pink; Jessica, a more delicate pink; Romeo, orange colour, with purple margins to the petals; J. T. Peacock improved; Exquisite, pink; La Belle, pure white, very attractive; Vesta, pale yellow, &c.

PITCHER PLANTS.

His Grace the Duke of NORTHUMBERLAND, Syon House, Brentford (gr., Mr. G. Wythes), showed one dozen of Nepenthes, which were generally furnished with finely coloured, well developed pitchers, the plants being dwarf and compact of growth. Very fine were the specimens of N. Wrigleyana, N. Curtisii, N. Morganiae, N. Dicksoniana, N. sanguinea, N. Mastersiana, N. formosa, N. Curtisii superba, and N. gracilis major.

Another collection of Pitcher-plants, under the more comprehensive name of insectivorous-plants, was shown by R. J. MEANURES, Esq., Cambridge Lodge, Flodden Road, Camberwell, London (gr., Mr. H. J. Chapman). This group was a very representative one of capitally-grown plants; but we are unable to dwell to enumerate the species and varieties shown. The exhibit was well worthy the Award it gained.

PELARGONIUMS.

There were not many shown, but Mr. C. TURNER, Royal Nurseries, Slough, as usual, had a group of fancy and decorative varieties, that no doubt found admirers, for the plants were grand ones and were abundantly flowered. Ambassadors, a fancy variety, pink, with white eye, was exceedingly pretty.

Mr. H. B. MAY, Dyson's Lane Nurseries, Edmonton, had several fine varieties of zonal Pelargoniums, Millfield Scarlet, King of Denmark, and Achievement, the last named being semi-double, and carmine in colour. The Ivy-leaved varieties Ryecroft Surprise, Mrs. C. Turner, and Galilee, were also shown.

STREPTOCARPUS.

There was a most attractive group of Streptocarpus from Messrs. JAS. VEITCH & SONS, Chelsea, in which were beautiful plants with abundant bloom, representing what are known as Veitch's hybrids, which have been described many times in these pages; but in addition to these there were groups of a strain obtained from crossing the above-named hybrids with *S. polyanthus*, and the strain is known as *S. achimenesiflora*. The plants vary, and some are known as pallidus, and others gigantes. The flowers are rather small, very abundant, and in appearance suggestive of those of an Achimenes. Most of them are of a pale heliotrope colour, with lemon-yellow throat. They have a delicate and peculiarly attractive appearance.

GROUPS OF PLANTS.

Messrs. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, had what may fitly be described as a "picture" group, at one of the sides of the Orchid tent. It mainly consisted of hardy flowering shrubs, amongst which Azalea mollis varieties, and what are described as *A. sinensis* hybrids, were the most showy. Hardy Rhododendron Marchioness Lansdowne, rose-coloured, with deep purple spotting, also contributed a great mass of colour, while several plants of R. Snowflake gave almost pure white blossoms. Hydrangea paniculata grandiflora and H. Hortensia mandchurica, H. E. roses, &c., gave characteristic effect. Rhododendron (hardy) Prometheus, red, should be mentioned, it being very effective. Other shrubs included Philadelphus Lemoinel, Pyrus coronaria fl.-pl., Lonicera, &c. The grouping of so much flower was delightfully relieved by standard plants of Oytisus Shipkaensis, Wistaria sinensis, Laburnums, and huge spikes of Eremurus himalayicus, and the tinted E. Elwesii. The most brilliant colour in the group was that afforded by a large flowering branch of Embotrium coccineum.

FERNS.

Messrs. W. & J. BIRKENHEAD, Sale, near Manchester, showed a rather numerous collection of British Ferns in pots, including pretty plumose and crested varieties of Polystichum, of Lastrea, Athyrium, Scolopendrium, Blechnum; besides rare species and varieties, as Lomaria fluviatilis, Pteris tremula Smithiana, Gleichenia dicarpa longipinnata, Gymnogramma schizophylla, Cheilanthes elegans, Adiantum Hemeleyanum, Pteris cretica Childsii, Aglomorpha Meyeniana, Silver and Golden Gymnogrammas.

A collection of Filices was shown in a glass case, small plants in admirable health and development.

Messrs. J. HILL & SON, Edmonton, exhibited Ferns in a picturesquely-arranged group at the end of the central table in one of the tents. Their plants were, in many instances of considerable size, and some were trained on stems of Tree Ferns; others were grown in wire baskets, and on blocks of cork as in the case of Platycerium ethiopicum. Rare species were noted in Asplenium marginatum, which possesses bold fronds with pinnae 7 inches long and 2 inches wide, and of a pale green tint; Notholaena sinuata, a plant of graceful habit; Adiantum ciliatum; Pteris gracilis, a species possessing very attenuated fronds and frondlets; Leucostegia immersa, a capital basket Fern; Polypodium piloselloides, a

Sir CHAS. FIGOTT, Bart., Wexham Park, Slough, had a group of handsome foliage plants, interspersed with a few flowering plants, such as Carnations, Erics, Lilliums, Humes elegans, &c. Some very fine Codiaums were shown, and the Palms and other specimens were distinctly creditable.

Messrs. FISHER, SON & SIBBAY, Ltd., Royal Nurseries, Sheffield, showed a group of foliage plants, most of them hot-house species, and staged around two fine Bamboos. *Aralia pulchra*, a fine species for the stove where space is not very limited; *Aralia regina*, A. Schifferi, Anthurium Veitchii, Cordyline Lord Wolseley, Codium Sunbeam, a very attractive variety, Nepenthes, Alocasia argyrea, Dracena Doucetti, Orchids, &c.

Mr. H. B. MAY, Dyson's Road Nursery, Upper Edmonton, showed some nice Coleus in variety, most of them of the large thick-leaved type, but presenting much variation in coloration; Crimson Gem and Golden Gem were the only self colours; the others being more or less spotted or flaked, and the most freckled of them all was Mrs. Tolworthy.

Messrs. JNO. LAING & SONS, Forest Hill Nurseries London, S.E., had a small group of Caladiums, Palms, and other hot-house plants. Their Streptocarpus "multiflorus" strain were also shown in this group, and were admired.

Mr. THEODORE JANMOCH, Dersingham, near Sandringham, made his usual exhibit of Lilies of the Valley and cut flowers of choice varieties of Lilac.

Aquilegias were shown by Messrs. J. VEITCH & SONS, Chelsea, who had a pretty little group of plants in pots. In colours yellow, blue, mauve, purple, orange, red, and white, they were amongst the prettiest of hardy plants.

Messrs. J. CARTER & CO., High Holborn, London, had some beautiful Petunias, single and double flowered; also Lilies of the Valley, Oenothera cruenta hybrids, and various other plants in a varied group.

A good decorative Pelargonium named Emmanuel Lias was shown in a group of plants by Mr. W. J. GODFREY, Exmouth Nurseries, Devon.

A group of well grown plants of Lillium longiflorum was shown by the Countess DE GREY, Coombe Court, Kingston-on-Thames (gr. Mr. Jno. Smith).

Mr. W. ICSTON, Granard Nursery, Putney, had a group of decorative plants, excellent Codiaums, Palms, Erics, Lilliums, &c.

CANNAS.

Messrs. CANNELL & SONS, Swanley, enjoyed the distinction of being the only exhibitors of these brilliantly-coloured flowers, a large group set up by them showing not only the finest quality in the flowers, but the best possible culture. Very striking amongst these, were Duke of Marlborough, Amie J. Chretien, Sec. Chabanne, Antoine Chantlin, Florence Vaughan, Frank Buckner, Léon Vassilière, M. H. Delrouse, and Menelik. The group comprised 120 plants.

GLOXINIAS.

These showy plants were well staged by Mr. J. J. UPRON, Islam Nurseries, near Manchester, who had a group of plants that were thoroughly well cultivated, and that were in variety of much merit. Thus we noticed President, white with mauve edging; Prince, bright scarlet and white; Monarch, also scarlet and white, but the tube in this case of pure white. An Award of Merit was recommended the strain.

Messrs. J. PEED & SONS, Roupell Park Nurseries, Norwood Road, London, had also some very fine Gloxinias, amongst which were the following varieties: John Peed, scarlet and white; C. Young, bright scarlet; Queen of My Heart, very thickly spotted with very small mauve-coloured spots upon a white ground; Purity, white; Countess of Warwick, white throat, with beautiful pink margin; Petunia, white throat, with rich mauve edging.

BEGONIAS.

Mr. THOS. S. WARE, Ltd., Feltham, made a splendid exhibit of tuberous-rooted Begonias, most of them double-flowered varieties, but including a few singles. Of the latter were Mrs. Barnes, pure white; Miss Ada Jordan, rose; Novelty, apricot colour; Miss Dora Brooks, yellow; Mr. Harry Tucker, crimson; The Queen, white; Avoca, yellow and orange; and Madame Belle Cole, bright rose colour, with white centre. Of doubles, and other than those described under "Awards," Captain Lambton, rich yellow, a prettily shaped flower, with much crimped petals, was well worth notice; Baden-Powell, a very delicate pink; Prince of Wales, scarlet; and a number of other varieties were exquisite in form, and brilliant in colour.

Messrs. JNO. LAING & SONS, Forest Hill Nurseries, London, S.E., had fewer Begonias than the firm has usually staged, and they were grouped in the big tent and faced with a few Orchids, Caladiums and other ornamental plants. One of the Begonia novelties is described under "Awards," and in addition there were others of great merit. Remarkable was one called cristata, a single yellow-coloured flower, more cresting on the petals than any we have previously seen, but less so than others in this group. Mrs. John Laing is a very pretty yellow, double; Duke of Fife, deep rose, double; Countess of Halsbury, white, with pink, crimped margins to the petals; Lady White, very delicately tinted double; Lady Roberts, white double; and Edith Sparshott, high double flower of tinted white and crimped petals.

Messrs. H. CANNELL & SONS, Swanley, owing to other exhibits that occupied considerable space, had rather a small group of Begonias, but it included some very choice varieties of singles and doubles, Mrs. Baden-Powell, rich pink double, is equally pretty but less pronounced in colour than B. H. Baden-Powell, which is rich crimson.

CLEMATIS.

Messrs. GEO. JACKMAN & SON, Woking Nursery, Surrey, made a display of Clematis, just as beautiful as previous exhibits from this firm. The *C. coccinea* hybrids were shown in some variety, including the well-known Countess of Onslow and others. Then quite of another type is the extremely large-flowered Otto Froebel, Henry, and others.

Messrs. R. SMITH & CO., Worcester, showed a grand lot of Clematis in pots. In colour the varieties ran from pure white to the very deepest purple, like La France. Mrs. Geo. Jackson is pure white, and single; and Lucie Lemoine, white, and double; Princess of Wales is beautiful among mauves; and there were others very charming.

CALCEOLARIAS.

Some marvellous herbaceous Calceolarias were shown by several firms. Particularly good were some from Messrs. J. JAMES & SON, Woodside, Farnham Royal. The plants were about 5 inches to 7 inches high, and 1½ ft. or more across, whilst the flowers were of very large size and brilliant colours. Some were of a rich gold colour, others crimson, and a number of varieties had flowers with promiscuous spotting.

Messrs. SUTTON & SONS, Reading, grouped a nice lot of plants in the large tent. One rich-yellow-coloured variety was Cloth of Gold, and it is important that this and all the other varieties have been produced from, and are perpetuated by, seeds. The foliage of the plants was as satisfactory as were the large and brilliant many-tinted blossoms.

Messrs. H. CANNELL & SONS, Swanley, had also a group of Calceolarias, and the plants made a very fine show.

One of the most extensive exhibits of Calceolarias was one from Messrs. WEBB & SON, Wordsley, Stourbridge. The group occupied a large table space, and showed that the Wordsley firm make a specialty of the plant.

Messrs. J. CARTER & CO., High Holborn, London, also contributed some fine Calceolarias, proving that these showy flowers are abundantly presented to the inspection of visitors to the "Temple" exhibition.

CARNATIONS.

These are always shown finely at the Temple, as they were on this occasion. Messrs. W. CUTBUSH & SON, Highgate, London, N., in the large Orchid tent made a very pretty display with Carnations, mostly of Souvenir de la Malmaison type, but including groups of border varieties also. The richly pink-coloured Princess of Wales variety of Souvenir de la Malmaison was given very considerable prominence, and is getting more popular than the paler and older forms. Newer and more highly coloured still are the varieties Juliette, deep rose; Mrs. Trelawney, of slightly different shade; Lord Welby, one of the best of this colour; Baldwin, a very charming pink colour; Lady Ulrica, also pink; Thora, pale salmon-cream; Cecilia, lemon-yellow, very fine.

Of border varieties we could pick out in the group excellent novelties in Herbert J. Outbush, brilliant scarlet (see fig. 108); Duchess of Fife, pink; Queen of the Buffs, Wm. Robinson, crimson; Duke of York, dark crimson. The group did not consist exclusively of Carnations, but included a nice lot of Calla Eliotiana, Acalypha hispida, Roses, Peonies, Lilliums, &c.

LEOPOLD DE ROTHSCHILD, Esq., Ascott, Leighton Buzzard (gr. Mr. Jno. Jennings), had a group of brilliant Carnations that faced the visitor when entering the Orchid tent from the others. The particular variety displayed was one named Jim Smyth, a large, rich scarlet variety, presumably a border variety, and one fully worth the display given it; Sergeant George, white; Abigail, deep pink; Miss A. Campbell, yellow, were also included.

Mr. CHAS. TURNER, Royal Nurseries, Slough, had a magnificent lot of plants of the richly-coloured variety of Malmaison Carnation named Princess of Wales; rarely are better cultivated plants exhibited.

RHODODENDRONS AND AZALEAS.

These plants were gloriously shown. The hardy Azaleas are grouped at these Temple Shows to such effect, that one would not be surprised were they cultivated in every garden.

Messrs. JNO. WATERER & SONS, Ltd., American Nurseries, Bagshot, had a magnificent group of hardy Rhododendrons, that made a glorious show facing the Orchids. The variety that showed to advantage against all others was the Pink Pearl, a novelty that has been shown on several previous occasions, but never on so large plants. It is pink, large, handsome, but its extreme beauty cannot be adequately described; Frederick Waterer, Mrs. F. Hankey, Lady Clementine Walsh, Delicatissimum, Mrs. W. Agnew, pink, with yellow spotting; Marquis of Waterford, brilliant red, with paler centre; and Sappho, white, with very deep blotch, were all pretty; but this does not nearly exhaust the number of varieties shown.

Messrs. R. AND G. CUTHBERT, Southgate Nurseries, Middlesex, staged such a number of hardy Azaleas, and put them together so closely to obtain a great variety in the space allotted them, that the effect was truly marvellous. The varieties Anthony Koster and Mrs. L. J. Endts, the former's newer rival, were well shown, and a host of others, many of which we have noticed at the Drill Hall shows when time and convenience have permitted us to make more particular observation than was possible at the Temple.

Mr. J. RUSSELL, Richmond Nurseries, Surrey, had a glorious display of hardy Azaleas. This group was at one end of a tent, and Messrs. CUTHBERT's group at the other end. Some of Mr. RUSSELL's varieties were unnamed seedlings, but they were all very choice; and amongst the named ones was, of course, Anthony Koster and

Oswald de Kerchove, Dr. Reichenbach, Hugo Koster, Nicholas Beets, &c., all of them of much merit. The varieties of *A. pontica*, though less showy, are exceedingly pretty, and embrace most delightful tints of colour.

Indian Azaleas were shown by Messrs. F. SANDER & CO., St. Albans; not so large plants as may be seen at the Ghent shows, but specimens a couple of feet high, with heads 2 feet or more across, almost every leaf hidden by the wealth of bloom. All of them were choice varieties, and many of them new, but we cannot describe a title of them, and it is next to impossible to select a few that could be recommended as superior to others. But President Plaff, scarlet, was greatly admired, because it is showy and free. Mr. F. Sander is a semi-double variety, pale pink, with deep rose markings.

Mr. CHAS. TURNER, Royal Nurseries, Slough, made quite a display of Azalea indica varieties, arranging them alongside his exhibit of Roses in the large tent. The Azaleas were of varying size, some rather large, but all of them were abundantly flowered, and they were representative of very choice varieties.

HARDY HERBACEOUS AND ALPINE PLANTS.

Collections of these, in pots, pans and baskets, or especially set up in imitation rockwork, and in moss, were plentiful, and necessarily exhibited much sameness in variety of plants and character of arrangement.

Mr. T. S. WARE, Feltham, Middlesex, had a nice group, pleasingly arranged, in great variety, in pots and pans, set in moss, inclusive of the fine old double-flowered yellow and copper-coloured Wallflowers, Incarvillea Delavayi, Peonies, Auriculas, Polemoniums, Cheiranthus alpinus, Primula Sieboldi, Phloxes, Geums, Iberises, Anthericum, Irises, &c.

Messrs. C. JACKMAN & CO., Woking, had a fine group of plants, including Peonies, Trolliuses, Anemone sylvestris fl.-pl., Anthericum Liliastrum, Aster alpinus superbus, Orchis foliosa, Erianthus dalmaticus, Betonica grandiflora, Dodecatheon splendens, Delphinium nudicaule, Columbine, Geums, and small things in infinite variety.

Messrs. R. WALLACE & CO., Colchester, sent in boxes and moss a large collection of Cyprripediums, including calceolus, pubescens, spectabile, occidentale, and others, Orchis foliosa, Calochortus in great variety, Anthericum, Brodiaeas, Lillium rubellum, Irises, Arum spectabile with black spathes, and a new Orange Lily, quite dwarf, of the Thunbergianum section, named Orange Queen.

Messrs. BARR & SONS, Long Ditton, Surrey, set up a miniature rockery and numerous pans of Alpines and hardy plants in great variety, Saxifraga pyramidalis, Cyprripedium pubescens, Aubrietia taurica, Gentiana verna, Cheiranthus Marshalli, Saponaria ocyroides, Saxifraga campaea, Viola pedata, V. bicolor, Papaver alpinus aurantiacum, Primula japonica, &c., were all prominent.

A very fine collection came from Mr. AMOS PERRY, Winchmore Hill, who had as a striking centre a huge mass of Tulip Peoties, and in baskets Primula japonica, Enothera speciosa rosea, Myosotis rupicola, The Edelweiss, Geums, Meritatum, Aurantium, Aquilegia Stuarti, Erigeron, Salpiglossis, of a pretty French grey colour; Anemone sylvestris fl.-pl., Ranunculus aconitifolius plenus, Aubrietias, Phloxes, Saxifragas, Iberis, Ramondias, &c.

Characteristic of the firm, Messrs. J. BACKHOUSE & CO., of York, arranged one of their pretty rockwork displays, backed by Pinuses, Japanese Acers, and tall herbaceous plants, Ferns, and small Bamboos. Very charming were Androsace sarmentosa, Papaver alpinum album, Cyclamen repandum, Gentiana verna, Saponaria ocyroides splendens, Dianthus Freyi, Anemones, and numerous other things.

Messrs. J. CARTER & CO., High Holborn, had a ridge-shaped mound of imitation rockwork, planted entirely with small Alpine plants, Saxifragas, Phloxes, Primulas, and many similar things.

The Misses HOPKINS, Huntsford, Cheshire, had Auricula Golden Queen in pots, a rather dull buff-yellow; the old double gold-edged var., the Theodore Polyanthus, Daisies, Aubrietias, Primulas, and other plants in variety.

THE GUILDFORD HARDY PLANT NURSERY CO., staged imitation rockwork, largely faced with cork. The plants in it were Alpines of all descriptions, plunged in pots or planted out. The background consisted of small Conifers, Acers, Ferns, Saxifraga pyramidalis, Trollius, Cyprripediums, Geums, Primula japonica, and many other things of interest.

Messrs. A. W. YOUNG & CO., Stevenage, had a small collection of Alpines, with various plants, as already mentioned.

Messrs. J. CHEAL & SONS, Crawley, showed a small rockwork arrangement, and plants, inclusive of creeping Phloxes, Cheiranthus alpinus, Gentians, Anemones, Daphnes, Myosotis rupicola, Funkias, Violas, with some charming flowering trees and shrubs, making a pretty collection.

MISCELLANEOUS.

Messrs. WILLIAM PAUL & SON, The Nurseries, Waltham Cross, had large bunches of the newer Lilies, such as Léon Simon, Emile Lemoine, Michael Bückner, Géant des Batailles, Madame Lemoine, &c., with illustrations of Cytisus and other flowering shrubs.

Messrs. W. H. ROGERS & SON, Red Lodge Nursery, Bassett, Southampton, had a collection of cut Rhododendrons, with examples of Arbutus procera, Ceanothus, Prunus Padus, Rhodotyus Kerrioides, Andromeda formosa, Magnolias, &c.

(For continuation of Report, see p. 334.)



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No. 701.—SATURDAY, JUNE 2, 1900.

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THE DAUGHTERS OF THE YEAR.

III.—MAY.

IF this year's month were typical, Chaucer's May and January would be a well-matched pair, and the Marchants' Tale would lose its point. During more than two-thirds of it rough winds did shake the darling buds of May. We woke each morning to hear a going in the tops of the Sycamore-trees—went out to meet the nipping, eager, withering north-easter. The swifts came on the 20th, and next morning the gardener announced that "the wind was off the land." Strong southerly gales followed, strewing the lawn with bloom, but bringing welcome rain; till on the 25th, spring, rehearsed only for a few days in April, came apparently to stay.

It was curious to note the entire arrest of visible vegetation by the icy sea-borne winds. Chestnut leaves hung limp, pink Apple-buds continued closed, the powdery surface green of springing flower-seeds was dormant, the sharp blades of Gladiolus projecting from the soil retained their inch-long shoot, till with the rain they sprang up, like Alice when the cake was eaten. The Wallflowers, glory of May, braved cold and draught, in every shade of colour, palest to deepest yellow, orange, blood-red, ruby, claret, mauve, flanked by pink dwarf Silene

and Forget-Me-Not. No less hardy were Violas and Pansies; some two hundred of them edge the Rose-beds; Roses, bearing ordinarily no brother near the throne, do not resent the neighbourhood of these. Each year I mark the finest, break them up for replanting, and give away the rest—give away, not throw away; the superfluous plants from a larger garden are welcome to the humble horticulturist, and the strip under cottage-eaves is a kindlier haven than the rubbish-heap for duplicate or discarded favourites. The Auriculas, too, have been fine; I bury among their roots the headless rats which the cat brings in from the stable, and they alchemise the loathsome brutes, odious dead as living, into fleshy leaves and white-dusted bloom. The large border is backed by wild Hyacinths growing in among the shrubs; when I look down upon them from my bedroom window, they shed a purple aureole into the air around them. I notice the same emanation from Aubrietia roses; only, I think, from blue or purple flowers. At one end is a mass of Iberis corneifolia, of tenderer foliage and more dazzling parchment-white than the commoner I. sempervirens; while near it is the handsome Verbascum phoeniceum, whose opening flowers, like the Foxgloves, will clamber up the stem from this time until the end of June. The rain has brought out the Globe-flowers; their near relations, the Marsh Marigolds (Caltha) flourish in perennial moisture round the water-butts. Globe-flower is not less thirsty. My plants come from Skelwith Bridge, where they cover all the tiny islets in the broad, swift Brathay, not objecting to immersion for a day or two when the river is in flood. From the Lakes, too, come my yellow Welsh Poppies, Meconopsis, difficult to acclimatise at first, then spreading everywhere, and at their best when May meets June.

This is the season of Geraniums. I encourage Robertianum and lucidum as a background to the narrower borders, leaving each year one or two to seed; the finer forms, Armenum, eriosteum, ibericum, the two shades of Phæum, pratense, sanguineum; old-fashioned Penicillium, sylvaticum blue and white, grow conspicuous and separate. The Lilies of the Valley are at their best, but I bemoan my loss of the rare pink variety, found, I believe, only in the woods of Buncombe Hill, on the Quantock slopes, where it is massed along with Pyrola rotundifolia. Rapacious Tauntonians at one time threatened to extirpate it, till I wrote to Dr. Alan Herbert, owner of the wood, who ordered his keeper to exclude all vagrom folk, and saved the treasure. The sun of the last few days has brought out the spreading carpet of the white Sun-cistus. I transplanted it long ago from Bream Down, near Weston, its only habitat, they say, except Torquay. And, opening at the very close of the month, is Pæonia corallina, the wild Pæony, indigenous or naturalised on the Steep Holme in the Severn sea. In 1867, while at Burnham, I employed a sailor to detach for me a root. I have bestowed tubers on scores of private and of public gardens, and have three fine clumps myself. Rock-grown, it requires thorough drainage. My custom is to sink a hole 4 feet deep, fill with stones to a foot from the surface, then put in rich soil and plant. Its crimson petals and central coronet of golden stamens often attract artists to portray it.

My old-fashioned herbaceous plants are coming out. There is the common Alkanet, its handsome Italian sister following later;

next come yellow Woad, whose use by the ancient Britons seems to be the one fact in so-called English history which everyone remembers, great bushes of Sweet Cicely, Myrrhis odorata, and the tall, glossy Smyrnum olusatrum; the first descended remotely from a plant in the Oxford Physic Garden, the second brought from Easedale, the last from ruined Scarborough Castle. Growing, too, in the same corner is the Danewort, Sambucus ebulus, supposed in southern England to have sprung from the blood of Danes shed in battle. To my plant, however, which I took up at the High Cross on Watling Street, near Leicester, is attached the local belief that it was planted by the Romans as a preservative against dropsy. Akin to these in coarse beauty is Elecampane, Inula Helenium, born of Helen's tears for the death of Paris; and the luxuriant Tragopogon porrifolius, whose roots are eaten as Salsafy, but whose rich purple bloom and large globular pappus-fruit, make it handsomest among the Composites. I keep this class of plants in a retired spot, to which I conduct only botanical enthusiasts, unless when the wide belt of German Iris which encircles them invites with its countless bloom.

I commend to all who have not tried it my lifelong method of endearing particular plants by connecting them with the localities whence they came. Viper's Bugloss is, perhaps, a common thing; but mine grew under Norham's castled steep, and may have been trodden by Marmion's horse-hoofs as his train followed him across the Tweed. A weed is Annual Mercury, but I gathered it while electioneering in the Isle of Thanet. A weed, too, and an insignificant one, is Scleranthus annuus, but taken from beneath the massive prehistoric dolmen of Kit's Coty House, which from its Kentish height overlooks the Vale of Aylesford, and the site of the earliest English battlefield. My farinaceous Primrose came from Loughrigg; my Eryngium campestre from the low hills round Amiens; my fine Acanthus, a capsule in my waistcoat pocket, from the Jardin des Plantes at Dijon; my little Dahlia scapigera from Linnæus' garden at Upsala. As I sit on my campstool and contemplate each plant in turn, there comes before me the day when it was transferred tenderly to my vasculum; the walk, the scenery, the company, the talk, the association, personal or historic. I have endowed it with human memory, lifted it to human companionship; I have refined my homage to the floral realm into friendship with the individual flower. *Corycius senex.*

KEW NOTES.

THE ROCKERY.—Conspicuous amongst the well-grown flowers now out at Kew is Phlox lilacina (Hort.). It is one of a set of Phloxes of rather mysterious origin, and very flowery habit, resembling the growth of P. Stellaria, but said to be seedlings of P. subulata. The oldest of the class is one figured by Sweet at the beginning of the century as P. procumbens. Asa Gray thought it a hybrid between P. subulata and P. amœna; it is still in cultivation, and is in good condition now on the Kew rockery. Other choice and rare plants now in flower there are Arabis pumila, very minute, with white flowers; Aster peregrinus, a novelty with solitary large flowers, recalling those of A. diplostephioides; Anthemis styria and A. carpatica, very similar to one another, of dwarf habit, with large flowers of the purest white; Veronica glauca, a dwarf, upright plant, with sky-blue flowers, larger than those of V. chamædrys; Erigeron leiomeus, not unlike the blue Algerian

Daisy; *Galax aphylla*, coming into flower in splendid health, with leaves of bright, glossy green.

In the Vetch border of the herbaceous garden, *Hedysarum obscurum*, *H. neglectum*, and *H. microcalyx* compete for the first place of gaiety; *Pentstemon Menziesii*, red, and its variety, *Scouleri*, pale purple, are side by side in contrast; and the finest *Trollius* in the garden, with enormous flowers of rich orange, is labelled *T. caucasicus* (Munich). Several distinct forms compete for the name "*caucasicus*." *C. Wolley Dod*, *Edge Hall, Malpas*, May 27.

ALPINE GARDEN.

R BOSNIACA.

FOR the possession of this charming little *Iris* I am indebted to Herr Max Leichtlin, who distributed it from his garden at Baden-Baden this spring. It belongs to the dwarf-bearded *Irises* of the same class as *I. pumila*, and ought probably to be ranked among the varieties of that species. It is however beautiful, and well worthy of cultivation. The standards are of a bright sulphur-yellow, the falls a deeper shade of the same colour, with a few brown markings. The bright yellow beard is a conspicuous feature of the plant. The leaves are broad, and the whole plant when in bloom is only some 6 or 8 inches in height. A plant is now in bloom on one of the ledges of my rock-garden. One can hardly say what its usual flowering time will be, but the first bloom opened here this year on May 22. There are two flowers on the spathe. *Iris bosniaca* was planted in March, and stood through the severe frosts of that month, which proved so destructive to many plants. *S. Arnott, Carsethorn-by-Dumfries, N.B.*

DODECATELON ELLIPTICUM AND D. TETRANDEM.

According to present appearances, the species of *Dodecatheon* will be superseded by the beautiful seedling and hybrid forms now being raised. There are probably some, however, who will continue to take an interest in the original plants, among which are *D. ellipticum* and *D. tetrandum*. Although the first is included among the forms of *D. Meadia*, and the name of the second does not appear in the *Kew Index*, but as they are in nurseries under the names given above, a brief note about them may be acceptable to our readers now that both the plants are in bloom. *D. ellipticum* has small flowers of a pale rose tint, supported on stalks about 9 inches in height, and has leaves of a form which give point to the name *ellipticum*. It is not a plant which I would deem of any particular merit when compared with other *Dodecatheons* now in cultivation. *D. tetrandum* is a better plant, however, with flowers although but little larger than the first named, are of a much deeper and brighter tint, which is accentuated by the white ring at the base of the flower. It is growing satisfactorily here in a shady part of the rock-garden, where the soil consists of peat and sand, and where plenty of water is applied in the summer. *S. Arnott, Carsethorn-by-Dumfries, N.B.*

IRIS ROSENBACHIANA.

This *Iris* well deserves the term handsome, applied to it by Mr. Mallett on p. 324. Among all the bulbous *Irises* that I have grown, I think there are few which I have admired more. I fear, however, that it is not very suitable for outdoor cultivation except in southern gardens. The worst foe are the late spring frosts. I grew it first soon after its introduction to this country, and when it was even higher in price than now. It survived for some time, but unfortunately, a couple of years ago the late frosts carried off both of the old plants and their offshoots. This was all the more disappointing, as I had come to the conclusion that this lovely *Iris* would become a permanent occupant of my garden. It should be afforded frame treatment as a plant rather too tender to withstand our climate. *S. Arnott.*

PLANT NOTES.

IRIS PARADOXA.

ALTHOUGH we know from Steven's original description, that *Iris paradoxa* is very variable, not only in size, but also and indeed especially in colour, the specimens which have hitherto reached this country have been very much alike, differing chiefly in the standards being either reddish-purple, or blue-purple, or a deep, almost, indigo-blue. At least, I do not remember to have seen others. One of the forms described by Steven was marked by the standards being white, except for a blue veining. Through the kindness of Messrs. Van Tubergen, of Haarlem, I have flowered this form, of which they have received a considerable importation. *I. paradoxa* is always charming, but this form, which ought perhaps to be regarded as the typical form, when seen growing with its foliage (and not exhibited in the form of a number of cut flowers all crowded, in fact huddled up together, as at the recent Temple Show) is especially beautiful. The flowers too are larger than many forms lately in cultivation; and I can strongly recommend the plant to those who grow this kind of *Iris*. *M. Foster, Great Shelford, May 28.*

SWEET PEAS.

THE Sweet Pea is at present such a popular flower, and so universally cultivated, that it hardly requires the metropolitan celebration of its bicentenary to intensify its popularity. That it is amply deserving of such a commemoration must be the opinion of all those who, like myself, have grown it assiduously and lovingly for years, and know from long experience its great value for decorative and richly artistic effect. On May 23 I had the privilege of being present at the Temple Show, the grandest exhibition of the kind that is held in Great Britain, and while I, like thousands of other spectators, was greatly impressed by the magnificence of the Orchids, Tulips, *Irises*, Roses, Carnations, and other glorious flowers exhibited there, my attention was at once rivetted, and held for a long time on my first entering the exhibition, by the exceedingly charming display of Sweet Peas, in various highly effective colours, shown by the Messrs. Dobbie, of Rothesay, who have made a specialty of the Dahlia, the Viola, the Pansy, and the Carnation, and are now devoting attention to a similarly concentrated fashion to the Sweet Pea, with equally gratifying results. I need hardly say that the specially attractive department in which they were exhibited was by far the most fragrant section at the Temple show, even if we include the magnificent Roses from Slough, Chess-hunt, Colchester, and Waltham Cross.

If the Rose is the noblest, considering all its endowments and capabilities, of garden flowers, the Sweet Pea is assuredly one of the most exquisite, and its fragrance, unlike that of many oriental and occidental Lilies, is refined. It is, indeed, such a fascinating possession that I grow it in thirty-eight places in my garden, in every conceivable picturesque situation; wherever, for example, a venerable fruit-tree, once pleasant to the gaze, has begun to exhibit symptoms of decay, it is made beautiful with the climbing and trailing tresses or tendrils of the gracious Sweet Pea. For many of the finest forms of this fair flower we are indebted to Mr. Henry Eckford, of Wem, in Shropshire; who, though he lives there, is a Scotchman, and a native of Midlothian. I learned this fact some years ago (when writing to him about his graceful creations) on the highest authority, viz., his own. In his work he has had no formidable rivals, though the Messrs. Burpee, of America, have also achieved, through the medium of cross-breeding, some gratifying results. But of Sweet Pea raisers, Mr. Eckford is the unquestionable king; among his finest productions are the following varieties, many of them exhibited

by the great Rothesay cultivators at the Temple Show, viz., *Blanche Burpee* and *Sadie Burpee*, giant forms of pure white; *Prima Donna*, *Lovely*, and *Her Majesty*, pink; *Countess of Aberdeen*, white, margined with pale pink; *Mars*, bright crimson; *Lady Penzance*, described by the raiser as being of a pale, but very vivid rose; *Countess of Radnor*, of gentle lavender hue; *Apple-blossom*, expressive of the exquisite name it bears; *Primrose* and *Mrs. Eckford*, of a delicate yellow shade; *Cardinal*, bright scarlet; *Queen Victoria*, of similar hue, but shaded with purple; *Salopian*, deep crimson; *Lady Nina Balfour*, tenderest mauve, suffused with dove-grey; *Countess of Powis*, orange, with darker tinting; *Duchess of Sutherland*, pearl-white, with light pink shading; and the pale lavender variety, *Lady Grisel Hamilton*, of recent origination. *Navy Blue*, an American introduction, is worthy of cultural association with these. *David R. Williamson.*

PALMS.

Few plants are more valuable as decorative objects in the conservatory, in apartments, or in the garden. Take the gigantic forms with their immense leaves, such as the *Arenga saccharifera*, a specimen of which species, growing at Syon House, possesses leaves 25 to 30 feet long, and the plant twice that height; and the *Date Palm*, which grew so large that it was either a matter of cutting down the plant or the plant lifting the roof from the house. Place by the side of these giants the graceful *Cocco Weddelliana*, and it is easy to see at a glance the value of each in its proper place. We all agree that small plants growing in pots are more valuable than big ones, as more of them can be employed; and it is surprising what large plants can be grown in a relatively small flower-pot, provided the plants have sufficient moisture and nutriment—but of this anon.

I was surprised to see on the continent so many beautiful Palms grown in very small pots, and many had been grown in tubs for a number of years without getting a shift; the great secret of success being ample supplies of nutriment and moisture.

I noticed that when large plants were growing in smallish pots, these were simply masses of roots, but very little soil remaining. They were placed in deep pans, and from these the necessary nutriment was obtained; and it was retained till the plant had absorbed it, and there was nothing left. Some large specimens of *Latania borbonica* (*Livistona*), with trunks as thick as a man's body, had not been re-potted or re-tubbed for at least twenty-five years, and yet they make splendid leaves annually. I mention this to show that a small Palm may easily be over-potted, and by that means made unhealthy, a state of things very difficult to cure, no matter how carefully treated subsequently. Some species make different root-growth to others, and these need a different soil, or at least a soil which readily parts with its moisture. Many Palms are ruined when young by the use of a soil that is too retentive of water, or in too great a bulk, so that souring ensues before the roots have taken hold of it and permeated it. Palms differ from other plants in that they should never be dried off, for though there is no active growth in the winter, the plants having numerous roots, any lack of moisture in the soil brings them into a bad way; a yellow tint appears on the leaves, and some of the lower leaves may fall off, a matter that should be guarded against, as the symmetry of the plant is thereby marred and its value deteriorated.

As regards soil and potting, a few words may not be out of place. It may be taken for granted that the smaller the plant the lighter the compost. Large Palms have been grown in loam alone, but I prefer a compost that consists of an equal part of turfy loam and peat, with a considerable addition of coarse sand, charcoal broken finely, and a small proportion of bone-meal. This mixture

is good for repotting plants of any size. For sickly plants and those which have suffered from over-potting the bone-meal may be omitted, affording more sand or old mortar-rubble passed through an half-inch meshed sieve. With small plants for table use it is necessary to pass the compost through a coarse sieve. Of great importance is good drainage to tubs and pots, and much depends upon the manner the potting is done, a loosely-potted plant lifting itself out of its pot, and the formation of rambling roots are encouraged, to the detriment of the more useful fibrous roots which maintain a Palm in good health, and help to retain the shapely form so much admired.

Some species, notably *Kentias*, have a tendency to make what are sometimes not inaptly termed stilt-roots, and though at first no harm results till such time as the plants become furnished with a

In this matter it holds good that the best roots are obtained in pots or tubs having wide bottoms, and that porous are preferable to heavy materials. As regards species of Palms, there can be no question as to the value of *Kentias* in the decoration of saloons and apartments. As an example of this, I may state that I have had a plant of *K. Fosteriana* in a living room for many years in perfect health. The secret of good health in this case is keeping the foliage free of dust by sponging it once a week, and affording the plant plenty of water, immersing the balls in a tub of water when it is large. I have used Clay's and Thompson's Fertilizers in the water applied to this plant, say, once a week from April to October, and less often in winter. I would not advise the use of manure to any Palm that did not possess ample roots, and which has been recently repotted.

intermediate house; and the same remarks apply to the *Seaforthias*, and the species of *Phoenix*.

I have referred to white scale as a pest on Palms, and the insect increases at a rapid rate when the plants are grown under glass, and in the dwelling. If this species of scale be allowed to remain on a plant for any length of time, the foliage gets disfigured with yellow spots destroying its beauty. The best remedy is to turn the plant on its side, and use an insecticide with a syringe so as to loosen the hold of the scale on the leaves, and afterwards to sponge them, especially the mid-ribs on which the scale has usually a firm hold. Mealy-bug needs much the same treatment, but stronger insecticide may be used against it. "Brown" scale is less troublesome, and is not difficult to destroy with tepid soap-suds. If red-spider be observed on a Palm, it shows lack of moisture in the air. It can



FIG. 110.—LORD WANTAGE'S COLLECTION OF FRUIT AND ROSES (FORTUNE'S YELLOW). FROM A PHOTOGRAPH TAKEN AT THE TEMPLE SHOW.

(SEE P. 353.)

heavy crown, then the strain on these roots is so great that they break, and the plant topples over and is ruined. As far as my experience goes, the only way to check the formation of stilt-roots is to lower the ball; indeed, with some plants I have cut away a very strong root, and by so doing it is an easy matter to lower the plants and bring the stilt-roots under the level of the soil. Another method is to partially shake out the soil from the roots, and place the roots round the side of a wide pot, potting the ball lower, and using the heavier kind of compost, potting firmly, and using a thin bit of stick to push the soil among the roots. These stilt-roots are, I imagine, sometimes induced by crowding the plants together when young, the top-growths being forced up to the light and the ball thereby lifted out of the soil. Another evil is failure to repot when it has become necessary, which is then as harmful as over-potting. Palms, when young, are injured when their roots are cut, but when larger and a great mass of roots have formed, these may be thinned without injury. It is seldom advisable to cut away strong roots.

The Date Palm, *Phoenix dactylifera*, is an excellent plant for standing in large rooms that are not heated much, as are the *Livistonas*. The *Arecas*, though light and graceful-looking, will not bear removal to apartments, the tips of the leaves soon turning brown, and the central leaves go wrong; on the other hand, grown under glass and not over-potted, *Arecas* are a very useful species. Another good room and very hardy Palm is *Corypha australis*. The various *Cocos* and *Geonomas* are not so suitable for indoor decoration, they soon go wrong at the roots if not given great attention. They should only be so used for a night or so at a dinner-table ornamentation, and then be returned to the stove. The last-named, when of small size are extremely serviceable, although liable to be infested with white scale. I need not give a list of names of Palms for general use, as they are well known. The *Arecas*, such as *Verschaffelti* *Baueri*, and *lutescens*, are all of them very ornamental, whilst the *A. sapida* is the handiest of this class, and good for cool-house work. *Rhapis flabelliformis* is a most useful plant, growing in an

be got rid of by syringing the plants freely in the afternoon, and closing the house. It is good practice to place a bagful of soot in the water used for syringing and root application, the soot acting as a deterrent to all kinds of insects, and as a mild form of ammoniacal manure. *G. Wythes*.

[We would warn all gardeners against allowing their Palms to remain for any length of time exposed to the fumes of burning gas, or the plants will become irreparably injured. Repotting, &c., may be performed just before new growth makes itself visible in the heart of a plant, and this differs in the various species; but generally, it becomes noticeable in the month of April in this country. Shaking-out and root-pruning may be done at a somewhat earlier date than simple repotting or re-tubbing, which may take place at any time between April and midsummer. In the case of the gardener having to perform the first two operations, a moderate hot-bed in which to plunge the plants is of great use in re-establishing them, even in the case of the hardier genera. Ed.]

FORESTRY.

TIMBER GROWING IN COPPICE WOODS.

THE proportion of land planted with underwood or coppice at the present day is comparatively insignificant compared with what was the case a century or so back. One reason for this is the fact that the produce of coppice-woods in the shape of fagots, rods, hurdles, poles, stakes, &c., has fallen so low in value, that this class of crop is less profitable than one made up of a quick-growing timber tree, such as Ash or Larch. In certain parts of the country, where large poles or pit-props are still in demand, coppice-woods of Oak, Ash, Wych-Elm, or Spanish Chestnut, grown on a rotation of twenty years or so, still bring in a fair return; and if properly attended to in the way of draining, protection from rabbits, and the stools cut clean and low, will continue growing for an indefinite period without need of replanting. But this class of coppice is usually unmixed with timber trees or standards, and cannot be termed underwood in the strict sense of the word, as there is no over-wood to justify the term. What we have more particularly in our mind just now is what is technically known as "coppice with standards"—a system of forestry which is almost universal in the older woods in most of the Midland and Southern counties of England. "Coppicing" seems to have been practised in this country from a very remote period, and in open or unenclosed ground, took the form of "pollarding," a practice evidently adopted to preserve the young shoots of the stool from being destroyed by cattle. The object in view was chiefly that of providing firewood for domestic purposes, the need for which was probably felt long before the value of timber for building or constructive purposes had become of serious importance.

One of the earliest laws in connection with forestry, or the cultivation of woods, applied to this class of crop, for in the time of Henry VIII. an Act was passed providing for the retention of a certain number of "standrells" to the acre, the fact being at last recognised that some steps must be taken if the supply of timber was to be kept up. The "Charta Foresta" of Henry III., as well as the more ancient forest laws anterior to that period, were framed and had reference almost entirely to the game and sporting rights of the royal forests and hunting-grounds of the sovereign, and contain little, if any, reference to the preservation or regeneration of the timber which served as cover for the game, and was valued accordingly. At the time Evelyn published his *Sylva*, however, it would appear that the planting or sowing of woods had become more or less general, and that the usual system of forestry practised was the one under discussion. The method advocated by Evelyn and several writers at a later date resembled in principle that adopted in the cultivation of cereals at the present day, and the nuts or acorns were frequently sown with a corn crop, and the ground between the rows of seedlings utilised for several years subsequently. Marshall, in his *Planting and Rural Ornament*, published in 1796, gives very precise instructions on the sowing of coppice-woods, which was carried out somewhat as follows:—The land was first sown with a corn crop, either in autumn or spring, using a smaller quantity of seed than in ordinary practice. The tree-seeds were then sown in drills about 4 feet apart, every eighth drill being sown with acorns, to provide the standards. At harvest, the corn crop was reaped and carefully removed, and the intervals between the rows of seedlings planted the following year with Potatoes, Cabbages, Turnips, &c., and the seedlings weeded and cleaned. This went on until the trees were too big to allow of easy cultivation between them, when the crop was left until the time of the first cutting, when the Oaks intended to form standards were selected and retained at about 10 yards apart, and the necessary pruning and removal of double-leaders attended to. After the underwood had been cut two or three times, the standards were generally out of danger

of being over-topped by the Hazel and other species, and their heads were allowed to spread. The subsequent pruning operations were directed, not to the preservation of a leading shoot, but to its removal, in order to throw the main growth into a side-limb. This was done to secure crooked timber for ship-building, the chief anxiety at that period being the provision of naval timber for the Royal dockyards. It is an unfortunate fact that the very means adopted to enhance its value for that purpose are responsible for a large proportion of the mature Oak of the present day being of comparatively low value for modern requirements. Length and straightness are the qualities most in demand in Oak timber now, and crooked timber is regarded as an evidence of bad sylviculture. A. C. Forbes.

(To be continued.)

TRANSVAAL NOTES.

(FROM OUR JOHANNESBURG CORRESPONDENT, NOW AT PORT ELIZABETH.)

JOUBERT PARK IN WAR TIMES.—At the beginning of October, when war broke out, my staff was discharged, and I was left alone in Joubert Park to dress and keep it as best I could. As the town and reef was cleared of British subjects to the number of over 100,000, so did visitors to the park dwindle away, until the only time I saw anyone was on Sunday afternoons. We lived a very quiet life indeed, our chief grievance being that our only information of the outside world came to us through Boer officials, and hence was unreliable to the last degree. Meantime, lonely, but not hopeless, I stuck to my post, kept the conservatories in fairly good order, prevented "commandeering" of plants and flowers, and tried to keep the walks neat by sweeping as often as possible. October and November were rather dry months; but December and January very wet, and the park got by degrees into such a state of weeds that I induced what remained of the Town Council to allow me six Coolies to clean up.

February and March passed without anything of special mark within the park except the flowering of a veritable yellow variety of *Gerbera Jamesoni*, which I obtained last year from the Low-country. The other parks in the town by degrees fell into a state of utter neglect, as did the charming private gardens we used to admire in the suburbs.

EXPULSION OF THE BRITISH.

With April the rumours which had long worried us as to the expulsion of the few remaining Britishers took form. A list of 400 of those allowed to remain was published, all others with their families must go. My name was not on the list of those permitted to remain, but I lingered for a few days longer, for I was much attached to the Park, and could say as Scott did on leaving Abbotsford, "There is not a tree there that does not owe its existence to me." Finding, however, that I was liable to summary arrest and imprisonment without appeal, we packed up a few necessities, and, leaving a Frenchman in my house and post, started for Delagoa Bay on April 10.

I felt anxious, as you may suppose, but I had done my duty, and am sure of the ultimate triumph of our cause.

Slight frosts at night had already been felt, the minimum night temperature under a screen was 45°, the rainy season had almost ceased, and the veldt was beginning to get very dry. We arrived at Pretoria, which is a much warmer place than the Rand, as shown by the *Bougainvilleas* and *Brugmansias* in full bloom. About ten miles east of the capital the railway passes a very large and thriving orchard of Peaches, Apples, Pears, and Plums, planted by Mr. G. Baikie, for Lewis & Marks' jam factory, and is an earnest of what will be done in the Transvaal when the war is over.

ON THE WAY TO DELAGOA BAY.

A reference to the map will show that the Delagoa Bay Railway crosses the high veldt, *via* Middelburgh, at an altitude of from 4,000 to 5,000 feet. The country is a flat, grassy plain, coal beneath, with

very little vegetation of any kind to be seen. Trees, however, when planted grow splendidly, and should encourage State forestry—a scheme I have brooded over for years, but, since I am an Uitlander, all my suggestions have fallen flat. We shall see next year what can be done.

Coming down to about 3000 feet at Waterfall Onder, some interesting plants were noticed. The beautiful crimson *Bauhinia Galpini*; a *Crassula* about 3 feet high, with huge, flat, pale yellow flower-heads quite 18 inches in diameter; many Aloes, large and small; a yellow Cassia, very many Acacias, dwarf Proteas, no Orchids of any kind, some tall and striking *Cussonias*—*Araliaceae*; these fine plants resemble Palms, and might be cultivated as substitutes for them. Two species of *Ficus* were passed, large trees both, but had uneatable fruits; a very large *Euphorbia*, often overhung with a Clematis, and a *Vitis* or *Cissus*. There were some large *Solanums*, and also *Leonotis Leonurus* not yet in flower; with a pretty pink-flowered *Vernonia*, and many large-growing grasses. As we neared the Portuguese frontier the scenery was magnificent; we passed huge kopps so high that, stretching our necks from the carriage windows, we could scarce see their tops, and thus we were reminded of those hills Dante saw, whereon those who lived in meditation in this world found rest. But our thoughts were not wrapped up in super-earthly meditation, for we shared Evangeline's fears and regrets when expelled from Grand-pré. A grand river, the Komati, flows with a broad, even stream amongst these solitudes; for human habitations or cultivation of any kind was quite absent—the country having a bad reputation for fever. Near Alkmaar Station, I saw from the moving train what seemed to be a new *Tritoma*, with a very long—4 to 6 feet—narrow flower-stem, about 1 inch in diameter, clothed with red and yellow flowers. Lower down, we encountered the so-called fever-tree, a remarkable *Acacia*, with smooth, pale yellow trunks and branches; and in rocky places I saw some very fine *Vellozias*—probably *V. equisetifolia*—with many branched stems, from 3 to 5 feet high; vast swarms of locusts were also passed. A Fan-Palm was plentiful near the sea, probably the Doum Palm of Nubia, *Hyphane* species, but no Date Palms, either wild or cultivated, were to be seen. In pools white and blue *Nymphæas* were not uncommon.

Arriving at Delagoa Bay we found the heat most oppressive, 75° at 9 P.M. in a verandah, and this, too, in the second week in April, or late autumn. Beyond the splendid bay there is hardly anything in the neighbourhood worth remark, except a grove of magnificent Cocoa-nut Palms, 60 feet high, fruiting freely. The soil is a recent brown sand, so poor as to be hardly able to support a scanty growth of scrub. The town itself is very hot, unhealthy, and expensive. We, i.e., myself, wife, and three small boys, paid two guineas a day in a second-class hotel. We took the first steamer that offered, but owing to martial law being in force in Durban the writer was suspect of being pro-Boer! and not allowed to land there. We came on to Port Elizabeth, but I trust that my next letter to the *Gardeners' Chronicle* will be written in Johannesburg. [To-day's intelligence, May 31, happily renders this probable. Ed.] R. W. Adlam, late Curator, Joubert Park, Johannesburg.

PRIMROSES AND THEIR ALLIES.*

(Continued from p. 326.)

P. farinosa, the Bird's-Eye Primrose, is a British plant, found in several counties in England, but the only station where it is known to grow in a wild state in Scotland is at Bridgehouse, near West Linton. It grows in boggy ground, has light purple flowers with yellow eye, produced on a scape 3 to 15 inches high. Closely related to *P. farinosa* is *P. scotica*, the Scottish Bird's-Eye

* Lecture delivered at a meeting of the Royal Caledonian Horticultural Society, on May 2, by Mr. R. Lindsay, Kilmee Lodge, Murrayfield, Midlothian.

Primrose. This is confined exclusively to the counties of Sutherland and Caithness, and the Orkney Isles. It has rich, dark purple flowers, with a yellowish eye, on a scape rarely exceeding 3 inches high. It differs from *P. farinosa* chiefly in being smaller in all its parts, and stouter proportionately, and also in the flowers being not dimorphous as is the case in most other species; and in its peculiar habit of flowering three times every year, in spring, summer, and autumn. It is best grown from seed annually, although the plant itself is a true perennial, and one of the prettiest little gems in our British flora.

Amongst European *Primulas*, perhaps none have for so long a time exercised such a fascinating influence over florists as the *Auricula*. Much has

and the flower in other parts nearly smooth, and not powdery. These are termed alpeines, and are the hardiest of all. The florists' favourites are readily distinguished by the dense, powdery matter with which the parts of the flower are covered. They are divided by florists into four sections, green-edged, grey-edged, white-edged, and selfs. I shall not attempt to describe the numerous varieties, many of them of great beauty, that exist at the present time. I may mention that in 1792 the catalogue of Maddock, a florist, had nearly 500 named varieties mentioned. During comparatively recent years a different type of *Primula* has become fairly abundant in gardens, which has less of the *Auricula* in its composition than *P. pubescens*, and known under the garden names of *P. nivalis*, *P.*

very closely resembling *P. nivalis* of gardens, and equal to it in point of beauty. In some respects, seedlings derived from what I suppose to be *P. arctotis*, are superior to those derived from *P. pubescens*. They are not so coarse in habit generally, their flowers are quite as brilliant in colour, and though less in size, are more freely produced; they are also deliciously scented. For planting on rockwork they are much superior. They are, however, more delicate in constitution, and require rather more care in their treatment for outdoor culture than the ordinary *Auricula*.

P. carniolica is a fine species from the Tyrol, which, along with its variety *multiceps*, form vigorous free-flowering plants, when grown in light rich soil; the leaves are oblong, with entire



FIG. 111.—MESSRS. FISHER, SON, AND SIBRAY'S EXHIBIT OF HARDY TREES AND SHRUBS. FROM A PHOTOGRAPH TAKEN AT THE TEMPLE SHOW.

(SEE P. 353.)

been written regarding the origin of this favourite flower. Darwin and Kerner have pointed out that it originated from *Primula pubescens*, and not, as often believed, from *P. Auricula*, a yellow-flowered species. From the evidence given by Kerner, it is highly probable that *P. pubescens* has furnished the starting-point of the garden *Auricula*. *P. pubescens*, which is known to be a natural hybrid between *P. Auricula* × by *P. hirsuta*, has been a favourite plant for ages in the gardens of the peasants of the Tyrol, and was cultivated as early as the sixteenth century in many flower-gardens in Europe, and from which were raised in later times, especially in Holland and England, a countless number of varieties. *Auriculas* may be roughly thrown into two classes, first, self-coloured varieties, with the outer and larger portion of the flower of one colour or shaded, the centre or eye being white or yellow,

ciliata purpurata, and *P. intermedia*. *P. nivalis* of gardens is frequently stated to have been derived from *P. viscosa* and *P. pubescens*, but a careful comparison of seedling plants which I have raised from all those kinds tends to show that they have been derived from the same source. There is very little doubt that they have all originated from a variable plant such as the common *Auricula* has been derived, and we find this in *P. arctotis* (Kerner), which is a natural hybrid of *P. Auricula* × *P. hirsuta*, like *P. pubescens*, but having a dash more of *P. hirsuta* than of *P. Auricula* in its composition, expressed by Kerner thus:—*P. pubescens* = *P. super Auricula* × *P. hirsuta*, *P. arctotis* = *P. sub-Auricula* × *P. hirsuta*.

P. decora, Sims, is probably only another form of *P. arctotis*. I have not, however, seen any seedling of *P. decora*, but it is liable to sport, as I have obtained a pure white variety in this way

margins, and die quite down to the ground in winter. The flowers are very freely produced, and rosy-purple in colour.

P. marginata is also a free-growing species from the French Alps. Numerous varieties of this are in cultivation, some distinguished by the more or less cut leaves, others have much darker flowers as in variety *caerulea*, than the type, which is pale lilac; the variety *grandiflora* has much larger flowers. They are all easily grown, and very desirable plants.

P. hirsuta, of Allioni, is perhaps the most common species in the Alps, and has many varieties. It is one of the prettiest, and also one of the easiest to grow. The flowers are bright rosy-purple, and appear in clusters only a few inches high; it is also one of the earliest to flower. This is the *P. viscosa*, of Villars.

P. integrifolia is the type of a large section, a

native of the Pyrenees and the Swiss Alps; it is of easy culture. The leaves are smooth and strap-shaped, the surface being shiny. The flowers are large, and of a purplish-rose colour.

P. minima, the Fairy Primrose, is an exceedingly dwarf species, not a very free grower as a rule, but where it does well is one of the most charming of the whole genus. The leaves are deeply crenate, scarcely more than an inch in length, but it has comparatively large rosy flowers, about the size of a shilling. A large number of hybrids exist in a wild state, particularly between *minima*, *hirsuta*, and *integrifolia*. These have been made a special study of by Professor Kerner, of Vienna. These natural hybrids are all exceedingly pretty, and rather easier to cultivate than the species from which they have been derived. I have mentioned only a few out of the many European species of *Primula* that are amenable to culture.

Regarding the Indian Primroses, out of the large number that are known to exist, very few have as yet proved amenable to cultivation in our gardens; still, there are several species of great beauty that thrive luxuriantly with a little care in their treatment. One of the very best of the hardy species, and also one of the easiest grown, is *Primula rosea*; the variety *grandiflora* being particularly handsome, as it has larger flowers of a much deeper carmine-crimson colour than the type; it grows best in dampish, rich soil, and should be in every garden.

P. denticulata is another handsome Himalayan species, a robust-growing plant. The flowers are produced in large, round heads, deep lilac in colour, borne on stems 10 to 12 inches high. It flowers early in the season, beginning in March. A great many varieties are in cultivation, some with dark purple or crimson flowers, others pure white.

P. cashmeriana is considered to be a variety of *denticulata*, but it is easily known by the under-surface of the leaves being covered with yellow powder, and also the flower-stalks; the leaves have also a peculiar odour that is wanting in the type. There is a pure white variety of *P. cashmeriana* in cultivation; all the varieties of *denticulata* grow best in damp soil.

P. capitata is an exquisite species, less in all its parts than *P. denticulata*, having globular flower-heads; the colour is a deep violet-blue, the flowers are thickly covered with a dense, white powder, especially on unopened blossoms towards the centre of the head of flowers. The leaves are wrinkled, pale green in colour, dentate at the margin, and somewhat lanceolate in shape. Unfortunately it is a short-lived plant, but it can be easily increased from seed, which it ripens in abundance.

Primula sikkimensis is one of the handsomest of the Himalayan Primroses, easily grown if planted in deep soil, and abundance of moisture supplied. It has pale yellow flowers, borne in an umbel on stems 2 to 3 feet high; the flowers droop in a peculiar way, and are covered with mealy powder. The leaves are long, wrinkled, and have the midrib widening towards the base.

Primula involucreata is another easily grown species; it has white or lilac flowers, disposed in an umbel on stems 8 or 9 inches high, very free-flowering. The leaves are erect, bright green, and spoon-shaped. All these Indian species that have been mentioned come from high altitudes in the Himalayas, 10,000 to 12,000 feet, they are therefore quite hardy in this country. They are all deciduous, or die down completely in winter, with the exception of *P. capitata*, and they are found to succeed best when grown in very moist ground—in fact, they should be treated like bog plants.

Primula Reidi, is one of the rarest and most elegant of all Primroses. It was found at Trisul, at an altitude of 12,000 feet, on the Himalayas in 1885, and is named in honour of its discoverer, James R. Reid, C.I.E., late of the Indian Civil Service, who is a native of Edinburgh. It has ivory-white flowers, drooping, sweet scented Carnation

odour, borne on a scape 4 to 6 inches long, and covered with white powder. The leaves are small and very hairy, especially on the upper surface. The plant dies down in winter, and like *P. capitata*, is not a long liver. From the high altitude in which this species grows in the Himalayas, it ought to be quite hardy in this country; but we find that it does not ripen its seeds freely when grown out of doors and is apt to become lost, but with the protection of a cold frame seeds ripen freely.

The first specimens of *Primula Reidi* raised in Britain were raised from seed gathered in the Himalayan district of British Garhwāl, in the inner region of the Himalayas, at an elevation from 11,000 to 12,000 ft. above the sea level, in the beginning of September, 1885. The plant was growing in profusion on the ledges of a precipitous mountain slope, facing southwards. It was then mostly getting into seed, although there were plenty of plants in full bloom. At that elevation the mountain slopes are probably covered with snow up to April. The snow then melts off, and during May and June, before the monsoon rains break, the heat of the sun upon the southern slopes of the mountains, even at that elevation, is great. Cold begins to set in about October, and not long after that more or less snow begins to fall upon the crest of the mountains, and to creep gradually down the slopes. The active life of this little plant therefore lasts from May to October. The moisture left by the melted snow is considerable, the hot sun of May and June notwithstanding; and during July, August, and half of September, in ordinary years, there is in those regions almost constant moisture in the form of wet fog, drizzling rain, or heavy showers.

"The specimens from which the plant was named were gathered in the British district of Kumaon, lying to the east of British Garhwāl—and part of the same Himalayan region—in the third or fourth week of August, 1884. But my companion and myself," says Mr. Reid, "found very few specimens on that occasion. I well remember reaching up the face of a dripping crag to get the first specimen we saw. As far as I can remember, no plants in seed were got; it was then a little earlier in the season than when we found it in Garhwāl in the following year. It was this plant of 1884 that my companion, Mr. J. F. Duthie, named as a new species, and thus botanically described:—

'Primula Reidi, n. sp.—Leaves ovate lanceolate, clothed with silky pubescence; scape erect, firm, 2 to 4 inches long; flowers, two or three in umbels, large, drooping; calyx broad, snowy-white inside; teeth triangular, acute; corolla about 1 inch across, cream coloured, its tube exceeding the calyx, and nearly white at the base; capsule globose.'

Mr. Duthie did not observe the fact, which was subsequently noted, that the flower was sweet-scented; nor does the description refer to the ivory-coloured bloom upon the scape and calyx.

The plant as seen in its natural habitat was in truth a beautiful little plant, with its silky pubescence, ivory-dusted scape and calyx, and elegantly-shaped corolla, of a creamy or ivory colour.

Our specimens were not the first that had been gathered. Mr. Duthie found among his collections made in 1883 in native Garhwāl (or Tilerī), which lies to the west of British Garhwāl, an imperfect specimen, which he had not specially noticed or described; and Sir George King turned up in the Calcutta Herbarium some unnamed and undescribed specimens labelled, 'Tilerī Garhwāl, 1869.' These had probably been gathered by a native plant collector. No specimens had apparently reached Kew. In the *Flora of British India*, vol. iii., published in 1882, in the 'Primulaceae,' which were described by Sir Joseph Hooker, the plant is not included.

What has been said about the climatic conditions of the plant's natural habitat indicates the probable difficulty of rearing and propagating it successfully elsewhere. No observation on the spot was made as to the natural fertilisation. It was clear, however, that in its native home the plant sows its seed plentifully. It is probably a biennial at least.

Two mounted specimens of 1885 plants are exhibited herewith. *J. R. R., April 28, 1900.*"

P. floribunda is a tender species, now commonly grown in greenhouses. It is a native of Mussoorie, about 4,000 feet altitude in the Himalayas, from which it was re-introduced in 1879. The flowers are small, golden-yellow, but very abundantly produced, and flowering continues for a long time. A variety called *grandiflora* has much larger flowers, and is a great improvement on the type.

P. mollis, the Bhotan Primrose, also requires the protection of a greenhouse; it has roundish, very hairy, and toothed leaves, and spikes of red flowers arranged in whorls. It has been a long time in cultivation in greenhouses.

P. prolifera is also too tender for outdoor culture; it has yellow flowers arranged in whorls like the well known *P. japonica*. The leaves are large and denticulate at the margins. This is often said to be the same as *P. imperialis*, a magnificent species from Java, but it is a very much inferior plant, and quite distinct; no one who ever saw the two species together could readily mistake one for the other.

A great number of fine Primroses are known to inhabit China and Japan. Very few of them have yet reached this country, but those that have reached us are among the finest we possess. The Japanese species are found to be quite hardy in this country; the Chinese are rather tender, and are best grown indoors.

P. japonica is well known as one of the tallest and finest of Primroses. It has usually deep crimson flowers arranged tier upon tier, or in whorls. Many shades of colour besides crimson are found, including white and striped-flowered varieties. It dies down in winter. (Deciduous.)

P. Sieboldi is another well-known species from Japan. It is one of the most useful Primroses either for outdoor or indoor cultivation that we possess. Numerous beautiful varieties have been raised from seed having various coloured flowers, from white, slate, blue, and purple, to crimson. The plant forms a rhizome, and dies down in winter.

P. sinensis, the Chinese Primrose, one of the most popular plants for greenhouse decoration that has ever been introduced into Europe, affords a good example of the perplexing synonymy alluded to at the beginning of this paper. In the year 1820 it was first brought to England from China by Captain Rawes. In 1821, Sabine named it *P. sinensis*. In the same year it was named *P. pratinensis*, by Ker Gawler. In 1826, *P. sertulosa*, by Kickx. In 1835, *P. Mandarin*, Hoffmannsegg. In 1837 (?), *P. semperflorens*, Loiseleur. In 1840, *Primulidium sinense*, Spach. In 1849, *Oscaria chinensis*, Lilja. These names all refer to one and the same plant. All the numerous varieties that are cultivated in our greenhouses at the present day, double and single-flowered, fringed and rounded-petalled, Fern and moss-curl leaved, and various other forms, are all the result of cultivation and selection alone, and not due to hybridisation. All attempts to successfully hybridise *P. sinensis* have as yet failed. So different are many of the varieties now in cultivation from the original *P. sinensis*, that had we not clear proof regarding their origin, any botanist might be pardoned for giving them specific names, but there is no such excuse to offer regarding the wild plant. [The history of the wild plant, with a figure, is given in the *Gardeners' Chronicle*, Nov. 15, 1890, p. 564. Ed.]

(To be continued.)

FLORISTS' FLOWERS.

JOHN BRIGHT STOCK.

THIS is a grand crimson Stock of the large-flowering summer type, that originated in the north or midlands some years ago, and is a great favourite with some of the Lancashire florists. There it is treated as an annual, mainly for the purpose of obtaining seeds, which scarcely ripens

in the case of Stocks sown in the spring, and is thus a precarious crop. But when grown as a biennial it is really superb. The seeds are sown in July and August, the plants wintered in a frame, and put out in the open in April and May. In the fertile black loam of the Manchester district this Stock colours brilliantly, and to add to its usefulness a considerable number of the plants produce double flowers. We do not in the south sufficiently recognise the value of Stocks in the spring garden when treated as biennials; they have a longer time in which to become matured, and they manifest the advantage of this by blooming so finely. That

a deterrent of slugs and snails, as well as to sparrows and other birds. The walls are covered with diagonal cordons of Apples and Pears, planted at 1 foot apart, the Pears having a run of 18 feet. The Pear-trees were in full bloom on May 5, with the exception of one of *Passe Colmar*, which had no blossoms, *Glout Morceaux*, and *Doyenné du Comice*. The Pears are on the Quince stock, a few being double grafted; one, *Charles Carmichael*, being on the Pear stock. They mostly carried blossoms from base to summit.

Of the Apple cordons, only *Gravenstein* and *Beauty of Hants* were in bloom, but most of the

d'Heyst, *Beurré de Capiaumont*, *Winter Nelis*, *Souvenir du Congrès*, *Louise Bonne of Jersey*, *Forelle*, *Durondeau*, *Seckle*, and *Williams' Bon Chrétien*.

The *Waterloo* and some few other Peaches were noted on the walls; and the *Wineberry* and *Raspberry* also found a place in this urban fruit garden, in which standard Cherries, Plums, Bush fruit, and Raspberries, also found places.

In Mr. Carmichael's Strawberry-garden close by, it was a pleasure to me to find the *St. Joseph Strawberry* already in bloom in the open air. D. T. F.



FIG. 112.—FROM A PHOTOGRAPH TAKEN AT THE TEMPLE SHOW, ILLUSTRATING SOME OF MESSRS. CHEAL'S "TRIMMED" TREES. (SEE P. 353.)

distinct variety, *Mauve Beauty*, which can be treated as a biennial, goes well with *John Bright*, and to these may be added the new white *Grace Darling* and *Navy Blue*, a continental variety being offered for the first time. R. D.

SCOTLAND.

AN EDINBURGH FRUIT GARDEN.

THE garden of about half an acre, belonging to Mr. W. Carmichael, is situated in Warriston Crescent; and the enclosing stone walls, have lately been dressed with a thick wash of soot and hot lime, as

others were showing flower-buds more or less freely, though not so prodigally as in the case of the Pears.

In view of the present discussion on "played-out" gardens and polluted climates in large towns, it may be stated that capital fruit is still grown in Edinburgh, although the Forth fogs are quite a match for those of the Thames. We do not think it fair to compare the Scottish capital with London in the matter of aerial impurity. Varieties of the Pear in full bloom on April 5 included *Olivier de Serres*, *Fondante d'Automne*, *Princesse*, *Conseiller de la Cour*, *Conference*, *Brockworth Park*, *Hacon's Incomparable*, *Marie Louise*, *Easter Beurré*, *Emile*

THE WEEK'S WORK.

THE FLOWER GARDEN.

By J. BENTON, Gardener to the Earl of Ilchester, Abbotsbury Castle, Dorset.

Mollis (syn. *sinensis*) and *Ghent Azaleas*.—These are hardy plants, which will grow well, and in either sandy peat or turfy loam, in partial shade or in the open. Where the staple is of this nature they grow and do well with but little attention for a great length of time. Plants of *Azalea mollis* when turned out of their houses should have the usual attention as to hardening off and clearing

foliage previous to planting them out, either for recuperation or permanently.

Lapagerias.—In the warmer parts of the country Lapagerias are well worthy of being planted on walls having a westerly aspect. The crimson and its white-flowered variety, if planted alternately, afford a pretty effect. So far, the unusually severe winters have not injured the specimens which are planted against a western aspect at Abbotsbury, so we may take it that no harm will happen to them. The best sort of soil for the plant is a sandy peat. It requires an abundance of water (rain-water by preference), and occasionally soft-water, when making growth. Slugs do much harm to the young shoots, and must be sought for at night, and zinc-bands or cotton-wool used round about the crowns. It is of advantage to put some kind of covering over the roots, in order to prevent moisture reaching the soil of the border at that season.

Culture of Mesembryanthemum.—In this genus of succulents there are to be found some handsome rock plants, all easily grown, and, like zonal Pelargoniums, succeeding in spots where there is full sunshine, and some distance from trees and shrubs. In planting from out of small pots, a pocket should be prepared on the rockery not less than 1 foot in diameter to 2 feet in depth, and filled within 4 inches of the surface with rich sandy loam, broken sand-stone, or granite broken small. As most Mesembryanthemums have a creeping habit of growth, they are very suitable plants to use for covering the face of rocks at any angle, in which situations they form dense cushion-like masses, covered in their season with bright-coloured flowers, the rivals of those of the Rock Cistus. If the plants have been wintered in a warm greenhouse, they must first be gradually hardened off, covering them of nights for a week or longer. Mesembryanthemums, with very few exceptions, should be treated as only partially hardy plants, and be raised yearly from cuttings taken in the months of August and September. Sideshoots taken with a heel, root readily if dibbled in thumb-pots, or several are placed round the edge of large 60's, filled with a finely-sifted sandy soil, to which a sprinkling of charcoal is added, to prevent damping-off. Do not afford the cuttings much if any shading, or moist surroundings. Cuttings root readily if plunged in a bed having a bottom-heat of 70° to 75°, being finely sprayed in the early morning hours, and exposed to direct sunshine. In some localities Mesembryanthemums produce seed-vessels, which as they become ripe should be gathered and stored on warm, dry shelves, when in a few days they will burst, enabling the seed to be shaken out. The seedlings, like the rooted cuttings, should be potted off early, and placed on a sunny shelf in the greenhouse, and afforded the same kind of treatment as the Verbena. The following are some of the best species for planting on hot, dry banks, and on the south side of a rockery: *M. abbreviatum*, *M. acinaciforme*, *M. squilaterale*, and *M. edule*. These four seldom flower the first year from cuttings, but being of a very vigorous habit, the creeping stems hang in dense masses over rocks, and reach a length of 10 to 20 feet. The method adopted here with such as are capable of being wintered out-of-doors at Abbotsbury, is to wait till the flower-buds show on the aged plants, which is usually early in the month of April, and take off the shoots with flower-bud, and place these singly in small flower-pots, and in a week or ten days they are rooted sufficiently to be planted with the other bedding plants. These flowering shoots make useful carpeting material, and produce flowers which measure from 3 to 5 inches across, and of purple, pink, and yellow colours. The annexed list contains the brightest and the most free-flowering of the more compact-growing section:—*M. amœnum*, *M. aurantium*, *M. aureum*, *M. baocatum*, *M. bicolorum*, *M. blandum*, *M. Browni*, *M. coccineum*, *M. Cooperi*, *M. echinatum*, *M. falciforme*, *M. floribundum*, *M. inclaudentis*, *M. micans*, *M. multiflorum*, *M. polyanthum*, *M. roseum*, *M. scabrum*, *M. spectabile*, *M. splendens*, *M. striatum* var. *roseum*, and *M. tenuifolium*. The above are selected from a collection numbering about 100 species, and comprise such as are best fitted for affording a display in the flower garden or rockery.

Miscellaneous.—At the moment of writing, the conditions of the weather and of the soil are very favourable for bedding out, and as much progress as possible should be made in getting the work abreast of the time of year. If the hardier kinds

of bedding-plants have been put out, a commencement may be made with the planting of Heliotropes, Cockscombs, Celosias, Ricinus, Fuchsias, and any of the recently-rooted cuttings and seedlings of these plants which have been properly hardened off. It is advisable after finishing the planting of the bed to afford water copiously to the soil, although it may seem damp; more especially is this called for in carpet-beds, as owing to the close manner in which the plants are placed, it is often a difficult matter to press in the soil round the roots with the trowel, and a heavy application of water fills up any spaces that may have existed in the soil.

FRUITS UNDER GLASS.

By J. ROBERTS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Vines.—Those Vines of Black Hamburgh and other early varieties the fruit of which has become fully ripe, will be the better for being kept rather cooler, fire-heat being employed only to maintain a temperature of 60°, with at the same time free ventilation afforded the vinery. If Madresfield Court, Duke of Buccleuch, and other varieties liable to crack their skins, are forced early, the condensation of moisture on the fruit must be carefully avoided, this being one of the causes of cracking. A small amount of air should be afforded at the top of the vinery at all times, and a gentle warmth constantly maintained in the hot-water pipes. Ventilation should be afforded early in the day, so as to avert the heating of the fruit. Let the border be kept moist, and long manure used as a mulch, and obviate the need for applying water while ripe Grapes are hanging on the Vines, and to favour root action. Let laterals grow with a little more freedom, wholesale stopping at this stage endangering the latent buds in Vines having much vigour. Some light shading should be placed over the Black Hamburghs, in order to conserve their colour. On bright days the vinery should be damped-down occasionally, but always when the ventilators are open.

The Early Muscat Vinery.—When the stoning of the berries is at an end, a high degree of warmth is necessary to afford perfect finish, and sunlight admitted to the bunches by tying back one or two leaves which may be shading the bunches, but subduing the ardent light by placing a herring-netting over the roof, otherwise strong sunshine may disfigure the berries at the shoulders of the bunches. This amount of shading will preserve the foliage in a good condition until the fruit is fully ripe. A generous treatment of the border will keep these Vines in active growth, and induce the formation of new leaves, which will take the place of the older ones that may get damaged. Temperatures of 70° by night, and by day of 80° to 85°, are suitable during the ripening stage, but any excess of humidity must be avoided.

Planting Growing Vines.—The end of the present and early part of next month afford the most suitable period for the planting of Vines raised from eyes last February and March, and grown in pots or on turves. Previous to planting the Vines, the border should have been well warmed by sunshine, and therefore should have had all mulching removed some time since, and a high temperature maintained in the vinery so as to increase that. After planting the Vines, afford a moderate amount of water, then apply a mulch of loose stable-litter, and shade the Vines from bright sunshine until growth has recommenced. Let the vinery be kept rather cool (60° at night) until the Vines are growing freely.

Inarching Vines.—Vines being at this season in an active state, it is the most suitable for the inarching of varieties. The current season's wood makes the best union. The process consists of taking a slice of about equal length and depth from both shoots, and binding them together so that the barks on each shoot unite on one side at the least. The Vines may both be in pots, or one may be planted in the border, and the other growing in a pot. Some varieties are much improved by inarching, apart from the use of the operation of replacing inferior with better varieties. Vines which make strong roots, like Black Alicante, Lady Downes, and Foster's Seedling, afford excellent stocks upon which to inarch the more delicate varieties. Muscates grow more freely, and make finer bunches and berries when inarched on the

Black Alicante; Duke of Buccleuch grows better, and fruits much more freely, and does altogether better, when inarched on the Black Hamburgh; while every other variety of the Grape that has been worked on Foster's Seedling Stock has been improved in constitution thereby. This subject of inarching varieties is worth extended experiments.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener to F. A. BEVAN, Esq., Trent Park, New Barnet.

Disbudding.—The time has arrived when this operation, so far as it applies to the Peach and Nectarine, should be brought to a close. Growth has been rapid during the last few days, and many of the forwardest shoots will need securing to the wall. It is advisable to make an early commencement with this operation, for the younger the shoot the more pliable. When the young shoots on the ends of branches reach the coping, or encroach on adjacent trees, the points must be pinched out.

The Crops.—I think that Peaches and Nectarines have set well generally hereabouts, and much thinning of the fruits will be required, which should be carried out at the same time as the final disbudding. Heavily cropped trees should be thinned freely; the practised eye being enabled to see at this date which are the best fruits to leave for a crop, a number being left to provide for dropping at the stoning period, a malady that seldom affects trees when the roots and soil in which they are growing are in the right conditions. Now that the weather has become genial, the trees may be more often and more liberally syringed, using clean water if no aphid be present, and tobacco-water much diluted if they are in quantity on the shoots. Those who object to the use of an insecticide, may use water at a temperature of 140°.

Nets and Blinds that have been in use may now be taken down and put into store, when in a thoroughly dry state; and coping-boards may likewise be taken down.

Apricots.—A very good crop of these fruits has set in this garden, and the fruits are fast increasing in size since warm weather set in and heavy rains have fallen. Protective coverings should also be removed from these trees. The work on Apricot-trees consists of laying-in young growths, the removal of gummed or dead branches, stopping gross or unnecessary shoots, and the thinning of the fruits. Let the trees be frequently syringed with clean water, and so direct the water that it enters all holes and crevices, and dislodges earwigs and other insects usually found therein.

Figs.—Until lately Figs have made only slow progress, but the gardener can at this date calculate upon the abundance or otherwise of his crop of this fruit. Let the shoots now growing freely be thinned, leaving no more than are required for filling blank spaces on the walls, and replacing the wood which will carry fruit the current year. It is seldom necessary to apply water to a Fig border, unless severe root-pruning has taken place recently. The border in which barren trees are growing should be kept on the dry side, in fact no more moisture should be allowed to reach the roots than is necessary to keep the foliage from flagging. This will check the tendency to make gross growth, and such as is made will be firm and therefore fruitful. Unfruitful trees that will not yield to this treatment, should have the roots pruned or be lifted next autumn.

Miscellaneous.—If any of the Gooseberry-bushes are infested with thrips and red-spider, an insecticide may now be safely applied, followed by a syringing with clear water at frequent intervals. Aphid on Currants may also be dealt with in a like manner. Should the Gooseberry sawfly-caterpillar put in an appearance, and the use of Hellebore-powder be objected to, dust the bushes with freshly slaked lime early in the morning when wet with dew, or after a damping with a syringe. When the lime touches them they drop from the shoots, and may then be destroyed by beating the ground with a spade. Road-dust, if quite dry, has the same effect on them as lime. Suckers now appearing at the base of Plum and Peach-trees should be cut off with a knife, after laying the roots bare at the point whence they issue. All such trees should have further attention in the autumn. In the event of heavy rain falling, afford a dressing of bone-meal to all stone-fruit trees, particularly if the trees cast their fruits when stoning.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WISEN, Bart., Clare Lawn, East Sheen, S.W.

Cypripedium Rothschildianum, &c.—"Slipper" Orchids are, broadly speaking, not difficult to cultivate, but some require more strict attention to detail than others. *C. Rothschildianum* is a good example. Although a native of New Guinea, it is found to thrive best in cultivation where a temperature of about 75° in summer, and about 65° in winter is maintained; moisture, shade, and other conditions being those required by most warmth-loving species. Many plants with partially developed growths will now need to be given new material, or larger receptacles. Make the pots rather more than half-full with drainage-material, and use a compost of good turfy-peat two parts, loam-fibre one part, and chopped sphagnum-moss one part, with a sprinkling of small crocks. For some considerable time afterwards give the plants only sufficient water to keep the material moist, and even when they are growing freely, prevent the compost remaining saturated for any length of time. During the winter months, or at other times, if the atmosphere is naturally moist, do not water overhead. *C. Stonei* requires much the same treatment as does *C. Sanderianum*, which however requires more light. *C. Chamberlainianum*, also from New Guinea, will grow best if given even a lower temperature than recommended for *C. Rothschildianum*, but otherwise its requirements are identical.

Cypripedium Laurencianum seldom thrives when given a deep compost to root in; it requires a good area of shallow, moisture-holding material. Pans about 5 inches deep, almost filled with drainage are most suitable for holding specimen plants. We repot our plants annually at this season, cutting off the oldest growths, and using the portions that have just flowered, with the advancing growths attached, to form the new specimens. The roots are laid flat on the drainage-material, and just covered with a mixture of equal parts of peat and sphagnum-moss, giving each portion ample room to develop its new growth. A good watering is then given, and it is repeated almost daily until winter approaches, when sufficient to keep the material moist only will suffice. A moist, shaded part of an East Indian-house is the most suitable position for this plant. The old separated portions should be laid on a damp surface, and in most cases new growths will develop. *C. callosum* is in many respects similar, but I would not advise annual potting for this species. It requires a shallow rooting medium, ample supplies of water, and shade, &c., as in the above case.

Laelia Boothiana is a shy-flowering plant seldom seen in bloom. That this characteristic is not entirely due to wrong treatment is evident from its comparative scarcity in its native country. Collectors tell us that it is never found in quantity in any one locality, possibly through few flowers being produced, and fewer fertilised. It is found growing on almost bare rocks, on the coast of Rio de Janeiro, where the spray from the Atlantic rollers frequently drench the leaves and roots. Sometimes specimens are found on trees, but these, a noted collector informed me, are never so fine as those on rocks within reach of the sea-water. I would not suggest the use of sea-water, but its partiality for bare rocks proves that to pack a lot of material about its roots is wrong. Specimen plants may be fixed in pans, with a large quantity of drainage-material, putting a few lumps of peat on the surface. Place them in a sunny part of the Cattleya-house, and when rooting freely deluge them with water; but at other times, only give water when too evident signs of shrivelling appear. *L.-C. Amanda*, a natural hybrid between this and *C. intermedia*, requires a similar treatment, but otherwise may be cared for as a *Cattleya*.

PLANTS UNDER GLASS.

By T. EDWARDS, Foreman, Royal Plant Gardens, Frogmore.

Chrysanthemums.—Preparations should now be made for the final potting; washing the old pots, and buying in new ones, so that when the repotting begins there will be no hindrances to the progress of the operation. Flower-pots of from 8 to 9 inches in diameter are large enough to grow successfully the large-flowered varieties for show purposes, but smaller ones serve for others. New pots should not be used until they have been immersed in water for two hours, and afterwards allowing them to become dry on the surface before

making use of them. A layer of turfy-loam should be placed over the crocks, the latter being large, and not too many in number. The plants may now be hardened off by removing the sashes from the frames during the day, and night also if the weather be mild. As a compost for *Chrysanthemums*, take four barrow-loads of strong turfy-loam, 1 barrowful of rotted hot-bed manure, and a 6-inch potful of bone-meal, with sufficient coarse sand as is calculated to keep the compost porous; let the whole be thoroughly mixed, and if dryish, afford water to the heap with a rose watering-pot when mixing it, and allow the mass to stand for a day or two under cover before making use of it. It is very important that the compost be in a proper state as regards moisture, as no water should be applied to the plants for some days after re-potting. When a plant is to be repotted, let the crocks be removed with no more disturbance of the roots than is necessary. Place the ball, fill in by degrees, and make the compost firm with a rammer, at a depth that will allow of $\frac{1}{2}$ -inch of compost above it, but not so hard that water cannot penetrate it. The balls should not be less than 1 inch below the rims of the pots, which will admit of ample water being afforded, and a top-dressing later in the season. Place stakes to the plants, and stand the latter close together for a week or two, and apply water with a syringe four or five times a day if the weather be dry. If aphides are detected on the tips of the shoots, dip them in weak tobacco-water before repotting is undertaken.

Solanum, *Bouvardias*, *Veronicas*, *Linum trigynum*, *Begonias*, and *Salvias*.—These, if for use in the flower-garden, should be hardened off by standing them in a sheltered position out-of-doors for a time. These plants sometimes suffer from exposure to bright sunshine when transferred from the pits and frames to sunny positions. Much labour in watering is saved, and better results obtained by planting out for the period from May to September many of the plants commonly grown in pots.

Cyclamens.—The plants raised from seeds sown last autumn may have their final shift, which should be into 5-inch pots, using a rather light compost consisting of loam one half, dried cow-dung and leaf-mould one half, with plenty of silver-sand. Care is necessary in repotting not to damage the leaves, and to make the soil firm with the finger, and to keep the top of the corm slightly above the surface of the soil. A position close to the glass in a heated pit, having a night temperature afforded of 55° to 60°, will suit the plants. Let them be lightly syringed three or four times a day, and strict attention be paid to shading them when the sun shines. If there is the least sign of thrips on the leaves, vaporise with XL-All, and continue to do so at intervals of a week till none is seen.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain HOLGROVE, Westonbirt, Tetbury, Gloucestershire.

Crops and Seedlings.—Most of the young plants raised in pits or frames have been planted out, except where sowings were made for late crops, and to fill up vacancies. The generality of these should not be too copiously watered, as, although at this season the days are hot, and spells of dry weather may be expected, the nights are often very cold. The plants should therefore be afforded water in the afternoon when the sun's power is less, but still early enough for the soil to become partially dry before nightfall. Unless the supply of water is plentiful and handy, plants in exposed positions should not be watered till absolutely necessary, as they flag more quickly afterwards if not attended to daily.

Cabbage.—The plants for the autumn and winter supplies, should have a good, well-manured plot allotted to them; and in order to have good out-tings from October till early in the New Year, seed should be sown from this date onwards till the end of the month of June. The seed-beds being dug or levelled down, should be well raked, and the seeds sown broadcast; and where this crop will follow early Potatoes, it will be as well to make the sowing rather later in the month, for if the plants are left too long in the seed-beds, they become starved. If the birds are troublesome, netting should be laid over the beds till germination has taken place, supporting it about 1 foot from the ground with little crutches. Wood-ashes sprinkled over the surface will keep down slugs

and snails. There are many excellent varieties for these sowings, among which Little Pixie, St. John's Day, and Christmas Drumhead find a good deal of favour; and they are capable of withstanding severe weather without being injured.

Shallots and Garlic.—These bulbs will now require to be carefully pressed into the soil, and the soil between the lines made firm. On light, also on poor soils, nitrate of soda, if applied before rain, greatly improves the size of the bulbs and cloves.

French Beans.—If seeds were sown as advised at the commencement of May, the plants will have made fair growth; and may be planted out on a sheltered border without further delay. To form a succession to these, another sowing should be made in a more open position, in drills 3 feet apart. The seed should be sown thinly, in double lines drawn 2 inches deep.

Vegetable-Marrows.—Plants raised from sowings made at the end of April may be planted on prepared beds, or on heaps of garden refuse. In the latter, holes should then be dug 1½ ft. deep and wide, in which some loam should be placed and made firm; then the plants set out, and the soil pressed around them. A bed of 24 feet square will hold about six Marrow-plants. For a fortnight, handlights should be placed over the plants at night, and removed by day.

Potatoes.—In heavy soils the hoe should be frequently used between the rows before earthing-up is done, in order to afford the soil a good crumb, and destroy weeds.

THE APIARY.

By EXPERT.

THE cold weather we have been having lately has done a good deal of damage to stock in almost every part of the country; and in many cases, unless the bees have been fed, a good many will be very weak indeed, otherwise the bees seemed to be very strong. And this seems strange, taking into consideration the length of the winter, and the cold, searching winds we have had; and it helps one to prove that the bees can do better than in a very mild winter, when the bees come out, and so many are lost. And there is no doubt that this last fortnight has caused the death of a great number, the winds blowing them about, and preventing them getting back into their hive.

Supering.—Everything should now be ready, section crates made up, carpets cleaned, and pieces of carpet for laying along the front, back, and sides of the brood chambers. To confine the bees to the section crate, stuff about 1½ inches wide is enough. In making sections, if done carefully, without wetting them is a good plan, because by wetting them it causes the wood to warp, and your sections will be out of square. This is most annoying, because you are likely to get your sections damaged, and even if this is not so, you find a very great difficulty in packing, the cases or crates being made to take a square 1 lb. section, and will not take them if not square, and to use any force to get them into the crate, will cause the capping to break, or the section rendered useless. And, again, it is not always the one section to think about; you have to consider how many sections will be damaged besides, on account of the honey running over them—and where large contracts are taken, it is very annoying to the purchaser to have so much trouble. A little notice, too, must be taken as regards taking out the full sections to keep them up the right way; it is surprising how many good bee-keepers do this and spoil sections. If the sections used are not split tops, a good plan is, after the crate is ready, to draw a small pencil mark along the top. Care should be taken that the crates are nicely packed, as one frequently finds bees building in every direction instead of in the sections, and much valuable time lost in consequence.

Brood Chamber.—All frames should be properly scraped before the section crate is placed on, and all bad dark combs removed, and new ones inserted, with full sheets of foundation wired for strength, particularly when you are working for extracted honey. Shallow frames should be dealt with in the same manner to prevent the combs being broken, and is useless for placing back again; this is very particular, as the bees have to draw out the combs instead of going straight away at gathering honey.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturalists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR JUNE.

SATURDAY, JUNE 2	Société Française d'Horticulture de Londres, Meeting. Royal Botanic Society. Manchester Whitenside Exhibition (5 days).
MONDAY, JUNE 4	Bank Holiday.
TUESDAY, JUNE 5	Royal Horticultural Society's Committee.
WEDNESDAY, JUNE 6	Notts Horticultural and Botanical Society's Exhibition, in Colwick Park (3 days).
THURSDAY, JUNE 7	Linnean Society, Meeting.
TUESDAY, JUNE 12	Paris Universal Exhibition (temporary Show). Cambridgeshire Horticultural Society's Show, at Cambridge. Salterhebble and District (Hallifax) Rose Show.
WEDNESDAY, JUNE 13	Yorkshire Gala (3 days). Cornwall Agricultural Show, at Truro (2 days).
MONDAY, JUNE 18	Royal Agricultural Society's Show, at York (5 days).
TUESDAY, JUNE 19	Royal Horticultural Society's Committee.
WEDNESDAY, JUNE 20	Royal Botanic Society's Floral Fête, Regent's Park. Rose Show at the Winch Working Men's Club and Institute.
THURSDAY, JUNE 21	Linnean Society, Meeting.
TUESDAY, JUNE 26	Paris Universal Exhibition (temporary Show). Royal Horticultural Society's Committee, in connection with the Show of the Richmond Horticultural Society.
WEDNESDAY, JUNE 27	National Rose Society's Exhibition, at Salisbury; and Wilts Horticultural Society, also at Salisbury. Southampton Horticultural Society's Show.
THURSDAY, JUNE 28	Colchester Rose Show. Canterbury Rose Show.
SATURDAY, JUNE 30	Windsor, Eton, and District Rose Society's Exhibition.

SALES FOR THE ENSUING WEEK.

WEDNESDAY, JUNE 6.—Picoles, Carnations, Caunas, Iris Kämpferi, Palms, Stove and Greenhouse Ferns, at Frotheroe & Morris' Rooms.
FRIDAY, JUNE 8.—Odontoglossum crispum, and Imported and Established Orchids, at Frotheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chislewick.—59°4'.

ACTUAL TEMPERATURES:—

LONDON.—May 30 (6 P.M.): MAX. 58°; MIN. 49°.

May 31.—Dull.

PROVINCES.—May 30 (6 P.M.): MAX. 59°, S. and W. Ireland; MIN., 48°, N.E. Counties.

It is asserted by WEISMANN and his followers, that there is no proof of anything acquired by an individual during its lifetime, whether animal or vegetable, being hereditary. As far as the vegetable kingdom is concerned, the evidence seems to be not only incontrovertible but universal.

There are two classes of evidence in biology, one is "inductive" and the other "experimental." By inductive proof, is meant such an accumulation of coincidences and probabilities, that an alternative hypothesis becomes put out of court. The result is often called a "moral conviction." These results are equivalent to an actual demonstration. Thus, for example, it cannot be otherwise "proved" that the sun does not really go round the earth in twenty-four hours. We say it does not, because it is far more probable that the earth should turn round on its own axis, the sun standing still; than that the latter, which is ninety-three millions of miles off, should describe a circle of 550 millions of miles round us in that time. Besides this, all the stars and planets would have to whirl round us too. Hence the old notions have become unthinkable.

Now let us apply this method of proof to vegetation. We discover that many aquatic plants of the class Dicotyledons, which live in water, have some or all of their leaves submerged; and then we find that they are finely dissected. The plants themselves belong to very widely different families, such as Ranunculus heterophyllus, &c., Cabomba, Myriophyllum, Helosciadium, Hottonia, Ceratophyllum, &c., and the coincidence at once suggests that the life under water has brought about this arrested condition. In other words the dissected form of leaf is an "acquired structure." But it is hereditary in every case. If, for example, the seeds of the first, or Water-crowfoot, be sown in a garden, they all germinate alike. They first produce dissected leaves—the anatomical structure being altered to suit an aerial existence; then, subsequently, about the time they would have produced complete floating leaves on the water, they bear similar ones, though now on land. Here, then, we see the hereditary effect is paramount as to form; but the new adaptation has altered the anatomy.

When we find "spinescence" and "succulency" characteristic of desert plants, the inference is overwhelming that such features are adaptations or results of the climatal conditions; especially as in many cases they can be changed to a spineless or ordinary leaf-type in other and normal environments. But the seeds of such plants reproduce the spines and the fleshy stems.

Hundreds of similar examples might be mentioned. Indeed, when we reflect upon the question, we see that the whole principle of evolution turns upon it; for how are new forms to be acquired and perpetuated if they be not first secured by some individuals, and then become hereditary?

Secondly, experimental evidence is forthcoming in every direction from cultivation. Take for example, the innumerable races of all the Cabbage tribe, Greens, Broccolis, Kohl Rabi, &c. These forms have all been acquired under cultivation from the one original wild species, Brassica oleracea.

Now, however, each and all are hereditary, for they are raised by seed every year. So too, is it with all the forms of the many "roots," as of Carrots, Parsnips, Turnips, Mangolds, &c. These forms were all acquired under cultivation; but they are all equally constant by seed, and are therefore hereditary.

So far, then, for there being no "proof" of structures acquired, being not transmittable, it seems more than surprising, that the suggestion should have ever arisen to the contrary.

Botanical Terms.*

WE hope Mr. DAYDON JACKSON will take it as a great compliment when we say of him, as is said

of sundry pens, that he comes as a boon and a blessing to men. He undertakes and carries through laborious tasks which most people would consider extremely irksome, and so far from being exhausted by his labours, in the case of the *Index Kewensis*, he settles down to new tasks, and now we find him bringing a much-needed botanical glossary. His labours have been rendered the more onerous as it is a frequent practice with the newer school of botanists to invent new terms, without stopping to see whether the older ones will suffice or not. It might, we think, be wise in some instances if there were a law of priority for physiological botanists, and those who practice microscopical research, as well as for those whose business it is to study comparative morphology and classification! Of course, when a new idea is put forth, or a new outlook on old facts, neologisms become necessary; but even then, it would be often useful to point out that these new words are more or less synonymous with older ones. Of what use, for instance, is the word "hypocotyl," which has entirely ousted the former terms, "tigellum" and "caulicle?" And so with many other newly-coined words, which slip into general use because their devisers do not look back to the history of their subject as a systematist is bound to do.

Mr. JACKSON acknowledges his obligations to ASA GRAY, LINDLEY, and the late Professor HENSLAW; but, oddly enough, unless we are mistaken, he omits any special mention of LINNÆUS, the two DECANOLLES, BISCHOFF, and BENTHAM, probably because he considered that their works had been sufficiently sifted by ASA GRAY, and the others he mentions.

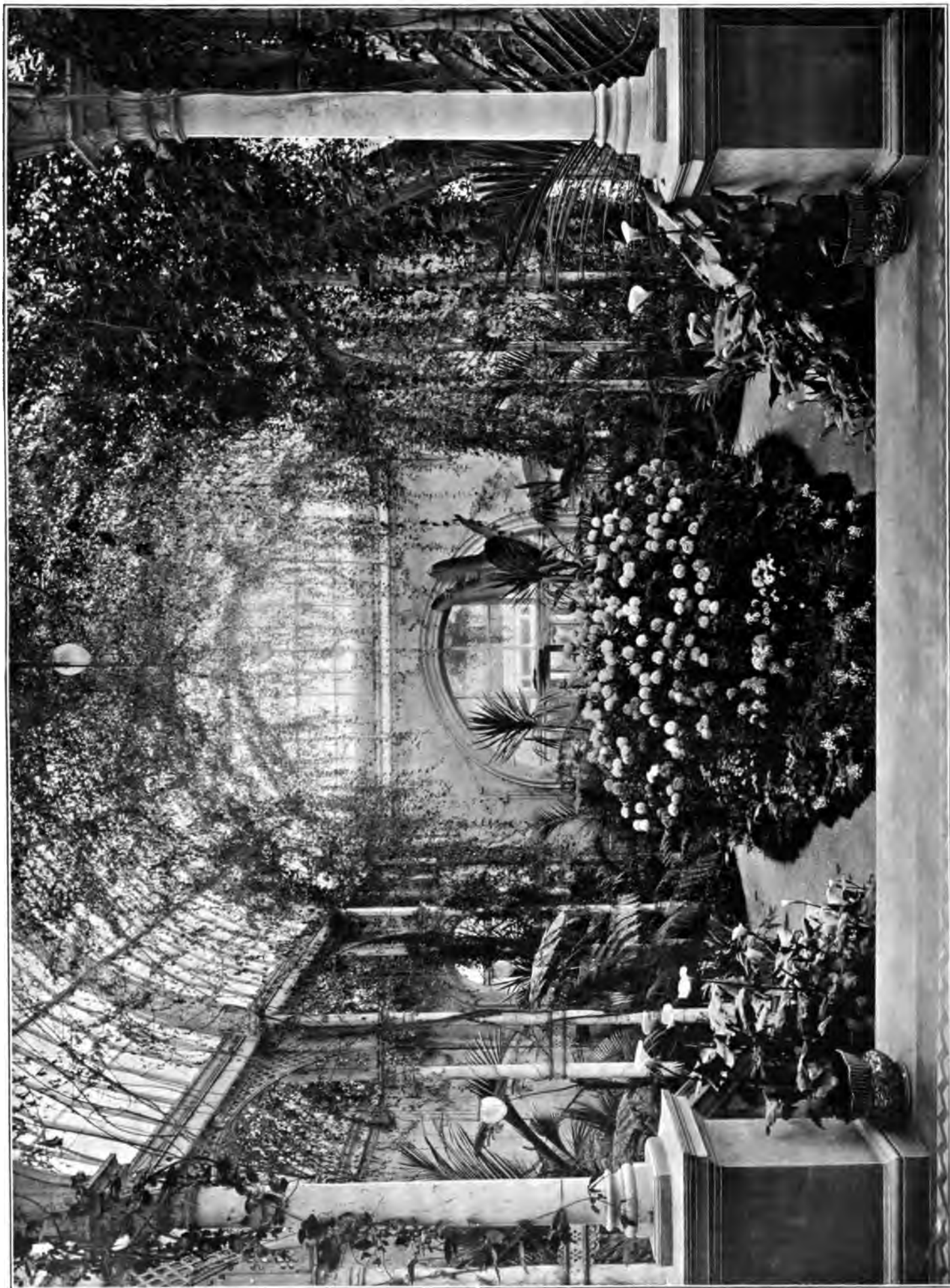
One botanist, according to Mr. JACKSON, is not satisfied with "stomata," but because they happen to present a trifling modification of structure, he calls them "archegonial," which at once creates confusion with the better-known female organs of the higher Cryptogams. Mr. JACKSON does not seem to have consulted the Japanese publications, some of which, though written in English, employ such unnecessary German terms as "kurz-triebe" and "lang-triebe" for what English gardeners know as "spurs" or "extension shoots" respectively.

But Mr. JACKSON is happily not answerable for the words he does include, still less for those he does not; his task to select and collate them, and for this botanists and gardeners owe him a clearly-defined debt of gratitude. Considering the nature of the book, the errors and slips are very few. In the next edition Cotton must not be described as the hairs of the Cotton-pod; and the signification of "Damping-off" will have to be extended. This very useful publication should find a place in every garden library.

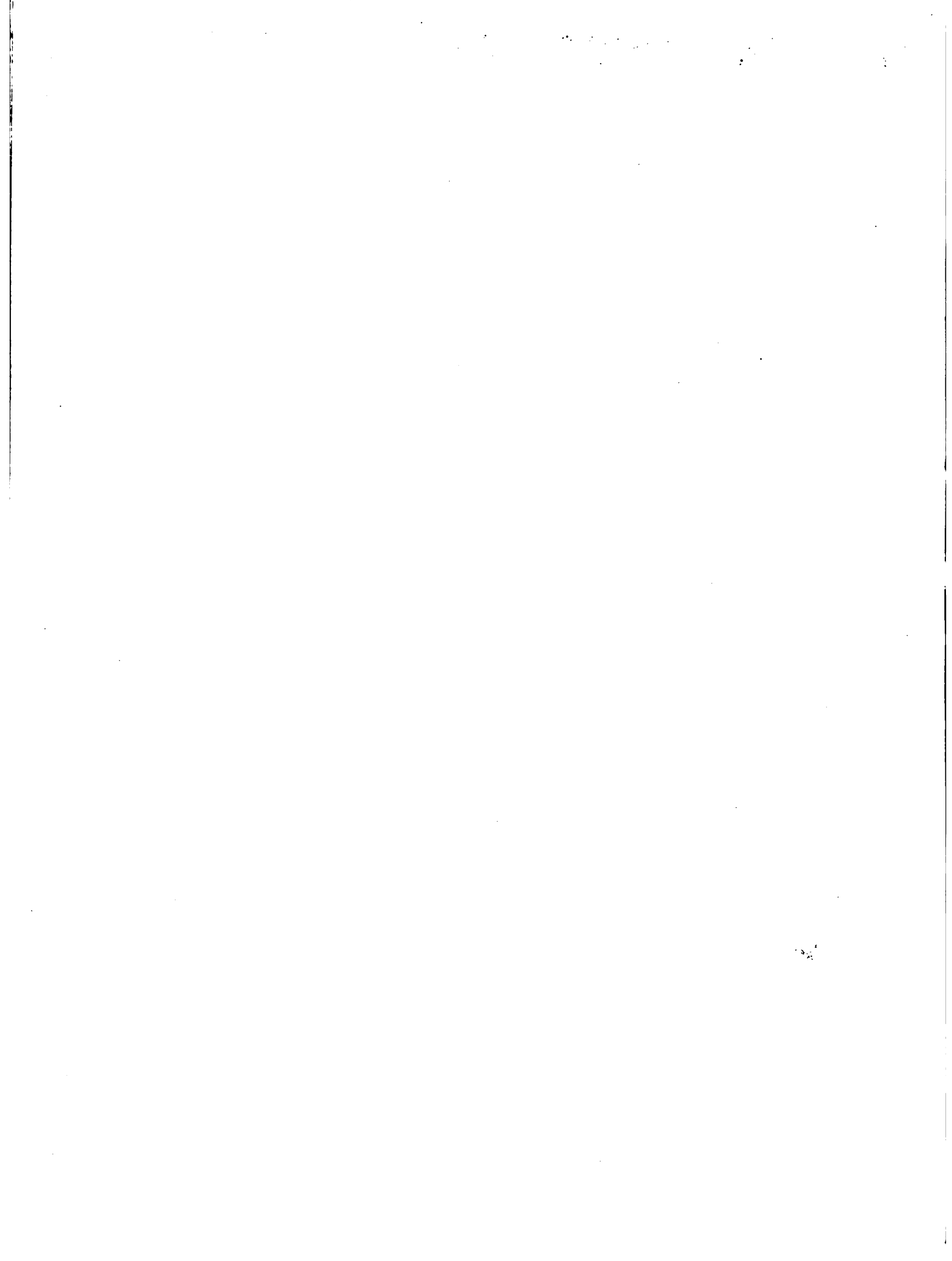
ROYAL HORTICULTURAL SOCIETY.—The next fruit and flower show of the Royal Horticultural Society will be held on Tuesday, June 5, in the Drill Hall, James Street, Westminster, from 1 to 5 P.M. A lecture on "Some of the Plants Exhibited," will be given by the Rev. Prof. G. HENSLAW, M.A., at 3 o'clock.

LINNEAN SOCIETY.—On the occasion of the evening meeting, to be held on Thursday, June 7,

* A Glossary of Botanic Terms, with their Derivation and Accent. By BENJAMIN DAYDON JACKSON. (Duckworth & Co.)



THE WINTER GARDEN, EASTWELL PARK, NEAR ASHFORD, KENT.



1900, at 8 P.M., the following papers will be read: 1, "On a Viviparous Syllid Worm," by Mr. E. S. GOODRICH, F.L.S., &c.; 2, "On the Genera *Thaoneuron*, Grig., and *Dicellandra*, Hook. f.," by Dr. A. STAPP, A.L.S.; 3, "On the Structure and Affinities of *Echiurus uncinatus*," by Miss EMBLETON.

NATIONAL HORTICULTURAL SOCIETY OF FRANCE.—Following the example of the trustees of the Lindley Library in England, the Executive of the National Horticultural Society of France has decided to prepare a catalogue of the books and pamphlets contained in its library. The work, which is actually in the printers' hands, promises to be an important one, for the Society has a large number of corresponding societies on its list, and receives in exchange for its own journal the official publications of most of these kindred societies. Besides these, horticultural and botanical works of various kinds form a considerable part of the library. Members of the Society should make application to the Librarian in case they desire to secure a copy.

CANADIAN TENDER FRUITS.—We believe it is not now the intention of Canadian fruit growers to ship tender fruits to this country, the experience of the past three years being against the continuance of the speculation. It seems strange that there has been anything like speculation in the trade, in what, we think, ought to be quite outside of speculation. The system of carriage is in fault—the cool chamber *en route* is a necessity for all tender fruit, and this is not provided. Why? Is it to be left for the Government to settle? To encourage shipments, the shipper has been guaranteed the average of the prices obtained at home, but this, it is contended, is not sufficient encouragement. Often, we are told, the consignments on arrival are not in a condition to secure a market. Our friends in Canada know exactly the prices good fruit realise over here, and surely they and the Minister of Agriculture ought to be able to induce the carrying companies to provide sufficient cool storage at an all-round remunerative charge. At any rate, it would be a great pity to abolish what ought to be a paying business—perhaps even now it may not be too late to reconsider the determination of growers.

COOK'S VOYAGES.—A series of *Illustrations of the Botany of Captain Cook's Voyage Round the World in H.M.S. Endeavour in 1768-71*, by the Right Hon. Sir JOSEPH BANKS, Bart., K.B., P.R.S., and Dr. DANIEL SOLANDER, F.R.S., with Determinations by JAMES BRITTEN, F.L.S., Senior Assistant, Department of Botany, British Museum, is about to be published by order of the trustees of the British Museum, by DULAU & Co., 37, Soho Sq., W. The publication of this monumental work has been undertaken by the trustees of the British Museum in the belief that it will be an important contribution to botanical science, besides being a fitting memorial to Sir JOSEPH BANKS. The work, when finished, will consist of upwards of 800 folio copper-plate engravings, illustrating the plants collected in Captain COOK's first voyage, when Sir JOSEPH BANKS and Dr. SOLANDER were the naturalists, and including a series illustrating the plants collected in Captain COOK's second voyage, when the FORBES were the naturalists. Their scientific value is indisputable, and their historic interest obvious. These two sets of plates were prepared at the expense of Sir JOSEPH BANKS, but have never been published; proofs only were pulled, and an incomplete set of these has been bound with the original drawings, and is now in the library of the botanical department of the British Museum. In the course of the hundred years since the plates were engraved, illustrations of some of the plants have been published, but the great proportion still remain unfigured. The manuscript descriptions, which came into the possession of the trustees, together with the plates, are printed verbatim. Mr. JAMES BRITTEN, Senior Assistant of the De-

partment of Botany, British Museum, has carefully compared the plates and descriptions with the original drawings and the specimens in the Banksian Herbarium, and has added such information as these supply. He has also added determinations in accordance with the nomenclature at present adopted. The plates will be issued in systematic order, in parts, under the headings Australian Plants, New Zealand Plants, &c. A detailed introduction will be issued with the final part. The publication of these plates forms an important complement to the story of the experiences of BANKS and SOLANDER on board of H.M.S. *Endeavour*, told at length in the *Journal of the Right Hon. Sir Joseph Banks*, edited by Sir JOSEPH HOOKER, from a manuscript in the possession of the Trustees; and also to the narrative of what has been described as being "to the English nation the most momentous voyage of discovery that has ever taken place," fully related in *Captain Cook's Journal*, edited by Admiral Sir WILLIAM WHARTON. The first part, now ready, is devoted to Australian Plants, and "about" six more parts will be needed to complete the work.

"IL CRISANTEMO."—The official quarterly journal of the Italian National Chrysanthemum Society has again made its appearance, and is in every respect equal to its predecessors. The honorary President is the Marquis VISCONTI VENOSTA, the President is Signor A. SCALARANDIS, head gardener to the KING of ITALY; and the Secretary Signor PAOLO RADARELLI. Other names closely identified with Italian horticulture find a place in the officers and Council of this progressive and youthful Society. Among the contents of the present issue we observe an account of the second annual show of the Society in Milan last November, illustrated with several photo-engravings of exhibits and a portrait of M. PHILIPPE RIVOIRE (Secretary of the French N.C.S.), who acted as President of the jury. Accounts of one or two local shows are given, and also two articles on the Lyons Show and Conference. Mr. HARMAN PAYNE contributes an article on Calvat's novelties, and one on Chrysanthemums for the open. A balance-sheet for the past year and list of new members brings the number to a close.

ROSE-SHOW FIXTURES IN 1900.—In addition to those fixtures given in our issues for March 17 and April 14, Mr. E. MAWLEY kindly sends the following:—June 13 (Wednesday), York (three days); June 28 (Thursday), Isle of Wight (Ryde); June 30 (Saturday), Maidstone; July 4 (Wednesday), Ealing, and Tunbridge Wells; July 5 (Thursday), Sutton; July 11 (Wednesday), Brockham; July 12 (Thursday), Woodbridge; July 13 (Friday), Ulverston; July 14 (Saturday), Manchester; July 18 (Wednesday), Carlisle; July 26 (Thursday), Bedale.

THE TEMPLE SHOW.—Upon reaching Messrs. SUTTON & SONS' stand, H.R.H. the Prince of WALES showed great interest in the Early Giant and Bountiful Peas staged by the Reading firm, and His Royal Highness intimated to Mr. SUTTON his willingness to accept some for his own table. On a previous occasion the Peas exhibited by Messrs. SUTTON & SONS were, by command of the QUEEN, sent to Windsor Castle for Her Majesty's inspection, and served at the Royal Table; and two years ago baskets were forwarded from the Temple show, at the request of the Prince of WALES, for use at the Derby dinner given by His Royal Highness.

BULBIFEROUS BLUE BELL I.—Mr. G. C. COOKE obliges us with a specimen of *Scilla nutans*, bearing near the base of the scape a narrow leaf 11 inches long, with a small bulbil nestling in its axil. The lowermost bract is also leafy.

THE COST OF CALLING A MAN NAMES.—At Littlehampton (May 28) a young lady was fined £3 11s. 6d. for painting "I am a Boer" on a gate belonging to a nurseryman at Wick, near Little-

hampton. The prosecutor said that he was Cockney-born, and owned 40,000 feet of glass close to the road. The defendant admitted painting the words because the prosecutor did not put out a flag in celebration of the relief of Mafeking. Colonel MIDDLETON, the Chairman of the Bench, said that he would not be called a Boer for £100. The defendant's conduct might have led to the prosecutor being lynched, in the present state of public feeling. *Daily Graphic*.

PINK LILY OF THE VALLEY.—Dr. HOUSEMAN, of Houghton-le-Spring, sends us a spike of Lily of the Valley, in which the flowers are very small, but of a distinct rose-pink colour. The variety is now rarely met with, but in the time of our forefathers it was more frequent, though never abundant.

ENGLISH IRISES.—The so-called English Irises of our gardens, as well as the Spanish Irises, grow wild in the Pyrenees, and owe their misleading name probably to the fact that they came from England into Holland, whence they have spread over the whole of Europe. The English Iris, the type of which is *I. xiphoides*, is closely related to the Spanish, *I. xiphion*, but may be distinguished from that variety by having a larger bulb, broader leaves, larger and broader flowers, which bloom a fortnight later, and which are characterised by a less rich variation of colours. Indeed, the garden varieties of the English Iris may be grouped under one of the following colours: dark blue, red-purple, lilac, or light blue, pure white and red-purple, or lilac spotted on a white ground. It is a remarkable fact that up to the present time there exists no pure yellow English Iris, although a yellow stripe or spot is to be seen on the lower petals in every variety. Even more surprising is this fact, that among the closely related Spanish Iris, yellow varieties are by no means rare, while repeatedly tried crossings between the two races have not yet led to the production of a yellow *Iris xiphoides*. The English Irises of our gardens have been cultivated from seed by the Dutch bulb-growers, and in the course of years they have succeeded in improving them considerably. *Florilegium Haarlemense*, October, 1899.

"THOMPSON'S GARDENERS' ASSISTANT."—The original work, published in 1859 by ROBERT THOMPSON, was at once accepted as the standard work on practical horticulture. It has been several times revised and brought up to date; and now once more, after a long period of incubation, it is issued under the editorship of Mr. WATSON of Kew. So numerous are the changes, that the new edition may be looked on as a new book. The first part now issued by the Gresham Publishing Company, 17, Farringdon Avenue, contains general directions for work during each month in the year in the several departments of the garden, articles on meteorology, the structure and mode of working of plants, insects and fungi injurious to plants, the nature and properties of soils; manures, by Mr. J. WILLIS; garden-tools and garden-structures are furnished by competent experts; so that the *Gardeners' Assistant* will retain its old position as the leading standard book on practical horticulture.

THE QUEEN'S VISIT TO IRELAND.—Her Majesty has presented a pin to Mr. D. WATT, gardener at the Viceroyal Gardens, Phoenix Park, Dublin. The pin has V.R.I. in diamonds on a background of enamel, and surmounted by a ruby crown.

PARASITE UPON CARNATION-RUST.—*Bulletin* No. 175, from the New York Agricultural Experiment Station, deals with a parasite upon *Carnation-rust*. Mr. F. H. BLODGETT in his summary, remarks that growers of Carnations in America have been troubled since 1891 with a disease known as rust, or *Uromyces caryophyllinus*. No marked success has followed the numerous attempts to check its development. Recently a natural check was noticed infesting the pustules of rust; this was the

fungus *Darlucia filum*. Possibly some benefit may be derived from artificially introducing this fungus into Carnation-houses, but it is not sufficiently abundant to be of great assistance in natural conditions.

MISSOURI BOTANICAL GARDEN.—We have received a copy of the eleventh annual Report, containing the report of the Director, and various scientific papers, including one on a disease of *Taxodium distichum* and *Libocedrus decurrens*, a monograph of the section *Tithymalus* of *Euphorbia*, with numerous illustrations, and a note relating to the species of *Agave* that have recently flowered in the Washington Botanic Garden.

A NEW GREEK INDUSTRY.—We have just seen a brief record of the successful issue of an attempt to establish a new Greek industry—the cultivation of the sugar Beet and the manufacture of sugar therefrom. The whole affair reflects great credit on the Greeks; they have wrested the market from the Austrians, who cannot compete with the cheap Hellenic labour, or in the quality of the raw material. With their "affairs" in the hands of creditors, and Currants a heavy drug in the market, it behoved the Greek to be up and doing—he would appear to be both.

DINNER OF THE KEW GUILD.—On Tuesday, May 22, the eve of the Temple Show, took place what it is hoped will prove to be the first of a series of annual dinners of the Kew Guild. It has already been recorded in these pages, that the Kew Guild is an association of gardeners who at any time have been employed at Kew, or who are at present engaged there, and it includes the Botanical staff of the Herbarium. The Guild was formed early in 1893, and its object is to give expression by means of a journal, to the feeling of comradeship, and loyalty to Kew, that exists amongst Kew graduates. The Guild has been a great success, and through its means, the whereabouts are now known of 510 old Kew men. Of these 80 have charge of botanical establishments, 125 are head gardeners; 100 are nurserymen, 50 foremen, and 18 are engaged either in lecturing, or on the horticultural press. The idea of holding an annual dinner was broached at the last annual meeting, and an unofficial committee was then appointed to take entire responsibility for the arrangements. The dinner took place at the Holborn Restaurant, and the director of Kew, Sir W. T. THISELTON DYER, K.C.M.G., C.I.E., &c., presided over an attendance of one hundred members. The Chairman was supported by Mr. GEO. NICHOLSON, President of the Guild, Mr. W. WATSON, Secretary of the Guild, and Editor of the Journal; and a number of well-known present and old Kew men. Many of them had travelled from distant parts of the provinces, including Edinburgh, Cardiff, Dorsetshire, &c., and one at least from the Continent, whilst there were several that have lately arrived home from the colonies, upon leave of absence. The Chairman's speech was naturally of a congratulatory character, but contained advice and encouragement to the younger members, tendered with a frankness much appreciated by all present. Just what was said we need not here reproduce, as absent members of the Guild will be able to read this in the Journal to be published very soon. The toasts during the evening included "The Kew Guild," proposed by the Chairman and responded to by Mr. NICHOLSON and Mr. WATSON. "Present Kewites," proposed by Mr. W. W. PETTIGREW, and responded to by Mr. GIRDHAM; and "Old Kewites," proposed by Mr. DALLIMORE, and responded to by Mr. W. B. LATHAM and Mr. UDALL. The proceedings were enlivened by a number of songs and a glee. Much regret was felt that Mr. W. BOTTING HEMSLY, F.R.S., and Mr. R. IRWIN LYNCH, Cambridge, were absent, owing to temporary indisposition.

WAR FUNDS.—Mr. H. RICHARDSON, representing Mr. H. G. SMYTH, collected from the Trade and gardeners in the refreshment-tent on the first

day of the Temple Show the sum of £2 5s., which he handed over to the *Daily Telegraph* South Africa Widows' and Orphans' Fund, and which was duly acknowledged the next day.

REMARKABLE EXPORTS FROM ALBANIA, which have an interest to the neighbouring countries, and in certain degree to our importers of hard woods, is the importance, quite recently experienced, of the exports of Ash and Boxwood. These trees are now being raised in a regular manner in nurseries. Until recent years these woods have been used solely as fuel, and never exported as building wood, for which purposes, Ash timber especially, has considerable value for use in the interior of buildings. Boxwood, of large size, for the use of the engraver, is always a marketable commodity in Europe, and a new source of supply will be heartily welcomed.

PEONIA CORALLINA.—We are indebted to Mr. S. B. DICKS for a flower of this plant. It is a single bloom of a peculiar shade of pale lilac-crimson, unlike any tint we know in *Peonies*. The plant from which it was taken was transferred from the island of Steep Holme in the Severn to the garden of a clergyman, whose living adjoins the Severn. We do not know when the *Peony* was first recorded from this locality; WATSON does not mention it, nor does CLARKE in his *First Records of British Flowering Plants*. BENTHAM says: "Not indigenous to Britain, but appears to have been naturalised in the rocky clefts of the Steep Holme Island in the Severn." HOOKER (*Students' Flora*) relegates it to "excluded species." NYMAN, in his *Conspicuous*, gives France, Portugal, South Switzerland (Ticino), Spain, South Bavaria, Austria, Italy, Styria, Croatia, Serbia, Montenegro, and Dalmatia, as countries where it, or some of its near allies, has been found. Its headquarters are therefore South European, and its appearance in the Severn island accidental. GERARD, in his *Herbal*, 1597, p. 831, says: "The male *Peonie* groweth wilde upon a conie berrie in Betsome, being in the parish of Southfleet in Kent, two miles from Gravesend, and in the grounds sometimes belonging to a Farmer there called John Bradley." It has been suggested that GERARD himself "planted that *Peonie* there, and afterwards seemed to find it there by accident, and I do believe it was so, because none before or since have ever seen or heard of it growing wild in any part of this kingdom." See HANBURY & MARSHALL, *Flora of Kent* (1899), p. 16.

THE NEW PARK FOR RAWTENSTALL.—The premiums of £50, £30, and £20, offered by the committee appointed to lay out the proposed park and playground at Oak Hill, for the best plans, have just been awarded. Each plan was to entail a cost of not exceeding £4,000, including the cost of materials, clerk of works, commission, and other expenses. The 1st prize was gained by Mr. E. THOMAS, designer and contractor, Aughton, near Ormskirk, and Mr. DAVID BIRD, architect, Atlantic Chambers, Manchester; 2nd, Messrs. W. BARRON & SON, Borrowash, Derby; and 3rd, Messrs. HINNELLS & MURPHY, engineers and surveyors, Bolton.

PUBLICATIONS RECEIVED.—*Nature Notes*, May.—*Bulletin of the Botanical Department, Jamaica*, Feb.: with communications relating to Raulle, Ballam Rice, Cocos at Guayaquil; Constituents of the Leaves of *Rhus metopium* and *Hematoxylon campechianum*, and Composition of Bananas and Plantain-fruits.—*Queensland Agricultural Journal*, April. This includes papers on Flax and Hemp in France and England, the Algaroba (*Prosopis juliflora*), Wheat-growing in South Australia, Saltbush, Drying Figs, Tropical Industries, Eradication of the Prickly Pear, and other agricultural topics.—*Report of the Government Botanist and Curator of the Cape Government Herbarium for 1899*. This records satisfactory work, that was varied by the excitement of a fire in the herbarium last September. Promptness of action prevented any loss, save that of "some 50 lb. weight of drying-paper was trodden into pulp upon the stairs and floor." It is hoped that a safer, and also a more commodious building, will soon be available for the collections.—*Annual Report on Government Gardens and Parks in Mysore for the Year 1898-99*. Unfortunately, the plague made its appearance early in the year; ten officials died, and others had sickness and discom-

fort to contend with. The disease also killed many of the animals. We agree with the Secretary's comment that "the present report of Mr. Cameron continues to be as interesting and informing as its predecessors."—From the University of California, College of Agriculture, come *Bulletin* No. 127, on Bench-grafting, Resistant Vines, by F. T. Bioletti and A. M. Dal Fiaz; and *Bulletin* No. 128, on Nature, Value, and Utilization of Alkali Lands, by E. W. Hilgard (Director).—*Über Keimpflanzen der Stein- und Kernobstgewächse* (Embryopants of Stone and Pippin-fruits). Von W. O. Focke (Sonder-Abdruck aus *Abh. Nat. Ver. Brem.*, 1900; Bd. xv, Heft 3.—The following *Bulletins* have reached us from the New York Agricultural Experiment Station:—No. 16: Fruit-disease Survey of the Hudson Valley in 1899, by F. C. Stewart and F. H. Blodgett; No. 168: Directors' Report—1899, by W. H. Jordan; No. 169: Fertilising Self-sterile Grapes, by S. A. Beach; No. 170: Common Diseases and Insects Injurious to Fruits, by S. A. Beach, V. H. Lowe, and F. C. Stewart; Efficiency of a Continuous Pasteurizer at different temperatures, by H. A. Harding and L. A. Reger. All the above bear date December, 1899. We have also before us *Bulletin* No. 175: A Parasite on Carnation-rust, by Frederick H. Blodgett, April, 1900.

PLANT PORTRAITS.

COCCHINIA DINTERI, André.—A supposed *Cucurbit* with palmate leaves, and irregular, oblong, cylindric, pointed, scarlet fruits. It has very much the appearance of a *Modecca*, or some allied genus. *Revue Horticole*, May 16.

DECAISNEA FABOIDEI, Franchet.—An erect shrub, with pinnate leaves, loosely racemose flowers, followed by elongated, cylindrical pods of a beautiful blue colour. It is growing in central France in the open air in the collection of M. Maurice de Villmorin. *Revue Horticole*, May 16.

LOCULIA GRATISSIMA.—Stove-flowering *Cinchonaceae* shrub, with oblong, acuminate leaves, and large trusses of fragrant flowers, superficially resembling those of *Hydrangea*, but widely differing. *Wiener Illust. Gart. Zeitung*, April, 1900.

POLYPTERIS HOOKERIANA.—A perennial from Texas, therefore of doubtful hardiness. It is a Composite, with shortly stalked, ovate, lanceolate, three-nerved leaves, and groups of flower-heads, with spreading pink ray florets, and a central disc. *Mackenz Monthly*, May.

WINTER GARDEN, EASTWELL PARK, ASHFORD.

We afford our readers in the Supplementary illustration in the present issue a view in Lord Gerard's conservatory at Eastwell Park, Kent. The structure is of pleasing design and large size, and, unlike too many such plant-houses intended more for exhibiting plants rather than for cultivating them, it is provided with abundance of light, without which few species of plants can be kept for any length of time in perfect health.

The arrangement of the plants when the photograph was taken was that made by Lord Gerard's gardener on the occasion of the visit of H.R.H. the Duke of Cambridge to Eastwell last autumn. The central group consists of large-flowered *Chrysanthemums*, and *Richardias* are the chief plants in the corner groups, whilst *Tacsonias*, *Passifloras*, *Roses*, &c., creep over the roof and pillars, and tender *Aracarias* and *Palms* *Musas* afford desirable contrasts with the flowering plants employed at various seasons of the year.

NOTICES OF BOOKS.

CYCLOPÆDIA OF AMERICAN HORTICULTURE. By L. H. Bailey, assisted by Wilhelm Miller, and many expert Cultivators and Botanists. Illustrated with over 2000 Original Engravings. In Four Volumes, Vol. 1: A-D. (Macmillan & Co.)

THIS work, as we are told in its preface, discusses the cultivation of fruits, flowers, and garden vegetables, in the United States; describes all the species which are known to be in the horticultural trade; outlines the horticultural possibilities of the various States, territories, and provinces; presents biographies of those persons not living who have contributed to horticultural progress; and indicates the leading monographic works relating to the various subjects. The book is either an original production, or prepared at first-hand from original sources of information, and "is not the work of copyist, or of space-writers." It is therefore a publication as substantial as it is elaborate. Its aim is distinctly high. Its purpose is to facilitate progress.

"The point of view is the garden, not the herbarium. The herbarium is the adjunct. In other words, the stress is laid upon the plants as domesticated and cultivated subjects. Special efforts have been made to portray the range of variation under domestication, and to suggest the course of the evolution of the greatly modified forms. Garden-plants are worthy subjects of botanical study, notwithstanding that they have been neglected by systematists. It is desired to represent the plants as living, growing, varying things, rather than as mere species or bibliographical formulas." These citations show the spirit in which Professor Bailey has worked. Much as he has

door culture is indicated, and the approximate method of cultivation and propagation explained. The description of the species cultivated in America follows, these being *A. chinensis*, Regel, *floribunda*, Decaisne, and *grandiflora* of gardens. In addition, mention is made of five other species not cultivated in American trade, though some of them find a place in European gardens, and will, no doubt, soon be found in America also. The descriptions of these latter plants are given in smaller type.

As Prof. Bailey has, of set purpose, confined himself mainly to plants that are "in the trade," viz., those which may be found offered for sale in

stair-way with definite halting places. English readers will need to use the *Cyclopædia* as a supplement to the *Kew Hand-lists* and to *Nicholson's Dictionary*, if they require to know fully what plants are in cultivation.

The horticultural capabilities of the various States form the subject of articles which are interesting to an English reader, and must be much more so to an American. They furnish a hint to the compilers of similar dictionaries here, to supply articles on the special features of our counties—maritime, mountainous, or otherwise. Of course, the differences are insignificant by comparison with those in the States; nevertheless the horticulture



FIG. 113.—MESSRS. J. VEITCH AND SONS' STREPTOCARPUS, FROM A PHOTOGRAPH TAKEN AT THE TEMPLE SHOW.

(SEE P. 3 OF SUPPLEMENT IN OUR LAST ISSUE.)

accomplished, he considers the book but a beginning. A first work is necessarily crude. We must ever improve. The Editor hopes "that every entry in this book will be worked over and improved within the next decade."

The list of collaborators is imposing, and comprises most of the leading horticulturists and garden-botanists of the States. In nomenclature, the *Genera Plantarum* of Hooker and Bentham, and the *Index Kewensis*, have mainly been followed, and for which we are devoutly thankful. The subjects are arranged alphabetically, beginning with "Abelia." A condensed description of the genus is given; the native localities from whence the species are derived are then mentioned. Their use in the garden, whether for greenhouse or out-

trade catalogues, we may not question his right to adopt what limitations he pleases. Nevertheless, in *A Cyclopædia of American Horticulture*, we should expect to find the descriptions of the plants grown in the botanic gardens and in the gardens of connoisseurs. The plants enumerated in the trade lists are, to a great extent, ephemeral, and representative of the passing fancy or fashion of the day. The trade lists meet the requirements of cultivators, and they are of great value to the students of evolution, in spite of the fact that they record only certain stages of selection, and not the whole course of progress. The intermediate forms being of relatively little commercial value, are thrown away and not recorded. Instead of a continuous chain of evidence, we have as it were a

of Shetland, let us say, is widely different from that of Devon, and that of the eastern counties from that of Ireland. The illustrations are really illustrative, though somewhat roughly executed. Apart from occasional matters of detail, it is difficult to find words adequate to express the value and general comprehensiveness of this encyclopedia.

We have given some indications of the contents of the book already, but we may induce the reader to pardon a little iteration by the following extract:—

"APPLE-SEED JOHNNY, an interesting and eccentric character who sowed Apple-seeds in the wilds of Ohio and Indiana, between 1801 and 1817. His real name was Jonathan Chapman. He was born in Boston, in 1775, and died in 1847. For forty-six years he walked bare-foot through the wilderness, and was never harmed by snakes, wild animals, or

Indians. He was often clad in a coffee-sack, in which he made holes for the arms and legs. He would never kill any creature, and considered pruning and grafting wicked. Swedenborg and the New Testament he read aloud in many frontier log-cabins. He had many peculiarities, but was always welcomed and respected everywhere. In the war of 1812, he saved many lives by warning the settlers of Hull's surrender, and the approach of the Indians. He lived to see trees bearing fruit over a territory of 100,000 acres."

This is an interesting article to come across amid the mass of descriptive matter!

CARNATIONS AND PICOTEEES FOR GARDEN AND EXHIBITION. By H. W. Weguelin. (Geo. Newnes, Ltd., Southampton Street, Strand.)

THE work of an enthusiastic grower, who has supplemented his own experience by judicious aid from most of the leading Carnation growers of the kingdom. He is a warm advocate of Carnations as garden-flowers, and does not unduly magnify the importance of the exhibition stage. It is desirable, as the late Lord Penzance pointed out, to have picturesqueness in flowers as well as symmetry. A flower such as the old florist delighted in, dressed and throttled with a card-board collar, was hardly to be called a flower at all. It was a flower whose lines were indeed cast in Nature's mould, but distorted into a work of art repugnant to the mind of a true lover of plants. Tastes however differ, and we find Mr. Weguelin considers the Marguerite section as a very poor type. We do not share this opinion, and considering that the plants may be flowered from seed sown in the same year, and that they may be had in bloom till late in the year, we think the Marguerite section amply deserving of recognition. Compared with an over-grown blowy Malmaison, of which we see so many, the Marguerite is to our fancy much superior, and more likely to give variety in the future. Mr. Weguelin's book is one which we can recommend with the greatest confidence, its chief defect is that it has no index, but the book is so good that an amateur or student might very usefully employ himself in making an index for himself.

THE WEATHER IN WEST HERTS.

THE recent cold spell, instead of lasting the usual six days, may be said to have lasted from May 9th to the 20th, or for twelve days. At all events, during that time all the nights were more or less cold, and only one of the days was in any way unreasonably warm. On three of the twelve nights the thermometer resting on the surface of the lawn registered from 5° to 7° of frost. The ground temperatures gradually declined, and on the coldest day, at 1 and 2 feet deep, were about 2° below their respective averages for the month. For nine consecutive days the winds came exclusively from some point between north and east, but at no time did the mean velocity exceed 11 miles an hour. During the same nine days the sun shone on an average for five and a half hours a day, or for more than half an hour a day less than is seasonable. Rain has come at last, and up to the time of writing about a third of an inch has fallen since the morning—equivalent to a watering of about 1½ gallons on each square yard in my garden. This is the heaviest fall we have had here for seven weeks, and for three of those weeks not a drop of rain passed through either of my percolation gauges. A selected Lilac-bush growing in my garden came first into blossom on the 18th, which is nine days later than its average date of first flowering in the previous fourteen years, six days later than last year, and the latest date for twelve years. The recent frosts did no perceptible damage to the foliage of my Roses, but these frosts, together with the more severe ones at the end of April, have caused a very large proportion of the shoots to come blind. *E. M., Berkhamsted, May 22.*

THE weather during the past week has been on the whole rather cool for the time of year, but on the other hand, decidedly warmer than in the two previous weeks. There were no frosts, but on two

consecutive nights the exposed thermometer fell to within four degrees of the freezing-point. The underground temperatures have risen, and are at one and two feet deep respectively one and two degrees warmer than is seasonable. The welcome rains which fell at the end of the previous week, amounted altogether to rather more than half an inch; but so dry had the ground become, that only about 6 per cent. of this amount passed through the 2½ feet of soil in the uncropped percolation-gauge, and none at all through the gauge containing the same depth of soil, but covered with turf. A Horse-Chestnut tree growing in my garden came first into blossom on the 23rd, which is twelve days later than its average date for the previous nine years, and later than in any year since that of 1891. *E. M., Berkhamsted, May 29.*

FRUIT REGISTER.

PEAR LA FRANCE.

THIS, according to our contemporary the *Bulletin d'Arboriculture, de floriculture, et de culture potagère*, is considered in France and Belgium a fruit of first class merit. In shape it is like Duchesse d'Angoulême, but smaller in size, and of first-class quality as to flavour. Its season is variable from the beginning to the middle of the winter. It was raised by M. Claude Blanchet.

RED WINTER CALVILLE.

This fine old Apple of globular form, but marked with five angles prominent especially at the top, so that the eye is deeply sunk, and of a rich red colour, is figured in the April number of the *Bulletin d'Arboriculture, &c.*

LAW NOTES.

A CLAIM AND COUNTER-CLAIM.

GLOVER V. SMITH.

THIS case came on for hearing at the Guildford County Court on Thursday last before His Honour Judge Lushington. The plaintiff, a nurseryman of Sutton, near Woking, and one of the original six founders of Covent Garden, sued the defendant, a Windsor nurseryman, to recover the sum of £10 15s., the balance of a contract to supply defendant with a quantity of cut Laurels for £21. There was a counter-claim for £28 for an alleged breach of contract, this being the amount the defendant claimed to be out of pocket, under a contract with a third party named Levi. The plaintiff's case was that he delivered 400 plants at 1s. each as ordered, and the defendant contended that the order was for 400 market bundles, weighing about 30 lb. each. The third party, Levi, with whom defendant had a contract to supply the Laurels for £25, refused to accept the goods sent, on the ground that they were not suitable for his purpose, viz., for use in connection with the Jewish Feast of Tabernacles. An extra feature of the case was that the plaintiff stated that a market bundle of Laurels would be worth 10s., whereas defendant said his charge would be 1s. 3d., at which price Levi deposed to having been supplied by Smith. His Honour said the two contracts ought to have tallied, but they did not. The defendant had made a mistake in some way; his contract with Levi did not agree with that made with Glover. He did not seem to have made his case clear to Glover or anybody else. There would be judgment for the plaintiff for £9 5s. and costs, and there would also be judgment for Glover on the counter-claim with costs.

TURKESTAN TULIPS.

CERTAIN species of Tulips from Turkestan have been introduced into gardens and alluded to in horticultural works under erroneous names, as has already been pointed out by Regel (*Gfl.*, 1884,

p. 356). As the species alluded to have been distributed from recent importations, and Regel's note appears to have been overlooked, the following descriptions and synonymy have been drawn up in the hope of clearing up the matter.

T. Kolpakowskiana, Regel (*Gfl.*, 1878, pp. 293 and 336, not of *Bot. Mag.*, t. 6710. *Syn. T. Borszczowi*; *Bot. Mag.*, t. 6635; and *Gard. Chron.*, xxvii. (1900), p. 309, fig. 99, not of Regel). Stem three-leaved, one-flowered. Leaves undulate, the lower narrowly lanceolate or linear-lanceolate, the upper almost linear. Peduncle glabrous. Perianth-segments elliptic-lanceolate or lanceolate, all acute, glabrous, clear yellow, or yellow flushed with red, or entirely red. Filaments glabrous, as long as the anthers.

T. Borszczowi, Regel (*Fl. Turkest.*, p. 137, t. 21, figs. 5-7; and *Gfl.*, t. 1175, figs. g-k., not of *Bot. Mag.*, t. 6635).—Stems usually four-leaved, one-flowered. Leaves much undulate, with a cartilaginous border, glabrous, the lower ovate-lanceolate or lanceolate, the upper narrower. Peduncle glabrous. Perianth-segments suddenly narrowed into a shorter or longer point, yellow or purplish, with a black spot at the base. Filaments glabrous, slightly shorter than the anthers, yellow, or blackish towards the apex.

T. Ostrowskiana, Regel (*Gfl.*, 1884, p. 34, t. 1144, figs. 1, 2. *Syn. T. Kolpakowskiana*, *Bot. Mag.*, t. 6710, not of Regel).—Stem three-leaved, one-flowered. Leaves glaucous, not bordered, the lower narrowly lanceolate, not undulate, the upper almost linear, shorter than the stem. Peduncle glabrous. Perianth-segments more or less patent, elliptic, gradually narrowed into a short cusp, purplish-red, with a black spot at the base. Filaments glabrous, blackish, one-third as long as the purple anthers. *C. H. Wright, Kew.*

FOREIGN CORRESPONDENCE.

TULIPA BORSCHOWI AND OTHER TURKESTAN TULIPS.

THE figure of the Tulipa, which on p. 309 appears as Tulipa Borsczowi, gives me a welcome opportunity of sending a note respecting Turkestan Tulips, it having fallen to my lot to identify a large number of Turkestan Tulips, which the Messrs. Van Tubergen, of Haarlem, imported last year from the Alexandra and Thian-Shan mountains in eastern Turkestan. I made a special study of their nomenclature, which for many years has seemed to me to be in a very confused state. As is probably well known, the Turkestan Tulips were first introduced to European gardens through the late Dr. Edward Regel, of the St. Petersburg Botanic Garden. Dr. Regel's son, Albert, who served as doctor in the Russian army, accompanied the Russian troops in their march into Turkestan, and for a period of about ten or twelve years he sent to his father bulbs, seeds, and plants from the districts in which he stayed. The *Acta Horti Petropolitani*, the *Gartenflora*, and other publications of Dr. Regel from about 1875 to 1885, are full of the original descriptions of Central Asiatic plants, and anyone studying the flora of these countries must make himself thoroughly acquainted with these publications. Quite a host of charming Tulipas, Irises, and other bulbs were distributed with the greatest generosity by the late Dr. Regel, but on his death the importations seem to have stopped, so that now the Turkestan bulbs have become extremely rare in gardens. Happily, Messrs. Van Tubergen have now again obtained through their collector a great quantity of these Turkestan bulbs, and especially of Tulips, many thousands of such brilliant kinds as Kolpakowskiana, Ostrowskiana, &c., may now be seen blooming in their nurseries. When setting myself to the agreeable task of identifying these Tulips, which were all sent home unnamed, I also consulted Mr. Baker's excellent monographs of these bulbs in the *Journal of the Linnean Society* and in

the columns of this paper, and I also turned for information to the *Botanical Magazine*.

No sooner had the first of the Turkestan Tulipas come into flower, when, on endeavouring to determine it, I became aware that in the English literature on the subject great confusion reigned. This Tulip, a fine yellow one, with the outer segments streaked with red, corresponded in every detail to Dr. Regel's description of *T. Kolpakowskiana*, both in the *Acta Horti Petropolitani* and the *Gartenflora*, and it also was exactly the Tulip of the *Botanical Magazine*, tab. 6635. Unhappily, in the *Botanical Magazine*, tab. 6635 does duty for *T. Borsczowi*, which, according to Regel's original description in the *Acta*, and also in the *Gartenflora* (the latter description being accompanied by a good coloured plate, tab. 1175), is an altogether different Tulip. *T. Borsczowi*, says Dr. Regel, is a most distinct Tulip; the outer coats of the bulbs

skiana. What is figured last week in these columns as *T. Borsczowi* is clearly the same Tulip as that of the *Botanical Magazine*, tab. 6635, and should have been named *T. Kolpakowskiana*, Regel.

If such a standard work as the *Botanical Magazine*, to which one generally first of all turns for information, represents a plant under a wrong name, there is the immense disadvantage that such a wrong name gets a sort of birthright among us, and that it will from time to time reappear, as it last week did in these columns. It was quite accidentally that I chanced to hit upon the paragraph quoted above from the *Gartenflora*, 1884, p. 356, which enlightened me on the matter. Had I not seen it, I would have given up in despair the identification of the Messrs. Van Tubergen's Tulips.

There is, however, yet another of the Turkestan Tulips which is wrongly named in the *Botanical*

probably is a variety of *T. Korolkowi*, produced bi-coloured flowers of great brilliancy, the lower half being a pure scarlet, with small black eye, the upper half of the flowers being a rich yellow. I have never seen any Tulip approaching it. Another very promising Tulip, with broad and luxuriant foliage, produced a medium-sized pointed flower, internally rich orange-yellow, the three outer-segments being coloured scarlet. In partially opened or closed flowers these two colours blended beautifully. None of Dr. Regel's descriptions corresponding with it, it will probably prove to be a new species. There were also many flowered white Tulips in the way of the diminutive *T. biflora*, but very much stronger, the white, black anthered flowers were about 1½ inch in diameter, and from four to eight were produced on a stalk; a dwarf Tulip, with broad leaves and yellow flower, black in the centre, nestling on a very short spike, a



FIG. 114.—HERBACEOUS CALCEOLARIAS SHOWN BY MESSRS. J. JAMES AND SON. FROM A PHOTOGRAPH TAKEN IN THE TEMPLE GARDENS, (SEE P. 4 OF SUPPLEMENT IN OUR LAST ISSUE.)

are thickly set at the inner side, with long hairs; the foliage is a bluish-green, very glaucous, and very much undulated. The peculiar shaped flower is brilliant scarlet, with a prominent black eye.

The Tulip *Borsczowi* of the *Botanical Magazine*, tab. 6635, does not possess a single one of these characters, so that evidently it is wrongly named. Here are Dr. Regel's own words on this subject (*Gartenflora*, 1884, p. 356):—"What is figured in the *Botanical Magazine*, tab. 6635, as *T. Borsczowi* does not at all represent this species, but is *T. Kolpakowskiana*. Of the latter I communicated bulbs to Kew, but not at all under the name of *Borsczowi*. Bulbs of *T. Borsczowi* have never been sent out from this establishment (the St. Petersburg Botanical Garden)."

As Dr. Regel himself introduced into, and first flowered *T. Borsczowi* in Europe, and very carefully described it both in the *Acta* and the *Gartenflora*, pointing out its very salient characters, there cannot remain the slightest doubt that the *Botanical Magazine* plate 6635 is wrongly named, and instead of *T. Borsczowi*, really represents *T. Kolpakow-*

Magazine. A very brilliant vermillion scarlet Tulip, with small black, yellow-encircled eye, and purple anthers, which also flowered out of Messrs. Van Tubergen's importation, proved to be Regel's *T. Ostrowskyana*, carefully described by him in the *Gartenflora*, and accompanying the description by a very good coloured plate (t. 1144), the same plant again being described by him in the *Acta*, vol. viii., p. 649. This Tulipa *Ostrowskyana* finds a place in the *Botanical Magazine* (t. 6710), but is there called *T. Kolpakowskiana*. It is again Dr. Regel himself who in the above cited paragraph of the *Gartenflora* also corrects this error, saying, "What is figured in the *Botanical Magazine* (t. 6710) as *T. Kolpakowskiana* is not at all this species, but really represents my *T. Ostrowskyana*." Other Tulips which bloomed out of Messrs. Van Tubergen's importation were *T. triphylla*, a medium-sized flower of pure yellow. Some plants showing a much deeper shade of this colour than others; there was also a great deal of difference in the size of the flowers.

A very charming quite dwarf Tulipa, which

diminutive bright yellow, very early-flowering Tulip, all of which will probably prove to be new species.

The cultivation of the various species of Tulipas can really not too strongly be recommended, and it is much to be regretted that where there exist splendid monographs on Lilies and Crocuses, viz., Professor M. Foster's invaluable *Treatise on Bulbous Irides*, and Mr. Baker's *Handbooks of Iridaceæ and Amaryllidaceæ*, the many cultivators of the Tulip have to look through publications and periodicals innumerable in case they wish to obtain information respecting this charming flower. John Hoog, Haarlem, Holland.

HOME CORRESPONDENCE.

MR. CULVERWELL'S RETIREMENT.—There was a notice some time since in the *Gardeners' Chronicle* of Mr. Culverwell's retirement from Thorpe Perrow Gardens. I have been expecting to see a more lengthy review of his life's work as a practical gardener,

especially as a grower of hardy fruits. It does not often occur that a gardener has the management of a place for fifty-one years, or that he has been able to train and prune, and gather the fruit from the same trees for so long a period. It is over thirty years since I first visited Thorpe Perrow, and I was impressed with the healthy appearance of the fruit-trees and the crops they then bore. The Peaches, Nectarines, Pears, Apples, Cherries, Plums, and Apricots, were all in the best condition, the crops being spread regularly from base to top in such profusion that I thought it must be an exceptional fruit year for northern Yorkshire; but on visiting Thorpe Perrow in following years, I found the fruit-crops much the same, and year by year until the present time the same high standard has been maintained. I have never observed finer Pears growing out-of-doors, the trees so short in the spurs, with plenty of foliage and young wood, and yet no waste growth. Even such a variety as Marie Louise, which in most gardens produces far too much wood, and far too often only bears fruits at the end of the branches, was, at Thorpe Perrow, a perfect picture; every branch bearing a heavy crop of fruit, and the tree was more than fifty years old. Other varieties are equally well done; trees of all ages, from newly-planted ones to those of fifty years old, show what patience and skill combined can do, affording a lesson to those who destroy their fruit-trees years before their time. If Mr. Culverwell could be induced to write an article on the culture of fruit-trees, especially Pears, and his method could be strictly carried out, it would bring pleasure and profit to all who tried his methods. The Peach and Apricot-trees are models of good training and pruning, bearing splendid crops of well-finished fruit. As to Apples, both for size and quantity, they would be hard to surpass. The Pears, both wall and espalier, are horizontally trained; stone fruits in the fan-shape, and Apples as bushes and standard. And then, what a sight the spring bedding always was! Scillas, Chionodoxas, Polyanthus, Crocus, Tulips, Daffodils, and Hyacinths, unsurpassed in any other garden. As a grower of hard-wooded plants he would be hard to equal; Azaleas, Camellias, grown in pots and boxes, abundantly prove this. As a hybridiser you have already spoken of him. The causes which have contributed to so much success were patience, energy, intense love of gardening, strict personal attention to details, and by being a constant reader of the *Gardeners' Chronicle*. J. W.

MECONOPSIS GRANDIS.—This Himalayan species has first come into flower here. With me the plants are quite dwarf, perhaps a foot in height. Each shoot has a single terminal nodding flower, which is large in proportion to the size of the plant. The colour of the flower is a good purple. It is not the best purple, that colour which we get in *Primula capitata*, *Phacelia Parryi*, some Pansies, and a very few other flowers; there is far too much red in it for that. But it is a good purple, and as the flower ages, the red tends to pass out of it, and a very beautiful colour is left, which glistens wonderfully in sunlight. A. K. Bulley, Neston, Cheshire.

COX'S ORANGE PIPPIN.—Mr. Dennis has, at p. 334, well knocked the bottom out of an old tradition generally believed, that Cox's Orange Pippin, and Cox's Pomona, came as fellow pips from the same fruits, when he tells us the late Mr. C. Turner's words, that of two seedlings raised one died, evidently the fittest survived. Dr. Hogg, in the *Fruit Manual* tells us, that Cox's Orange Pippin was raised in 1830, which makes the variety to be seventy years old, and also that it originated from Ribston Pippin. As to Cox's Pomona, raised by the same person, nothing further is said. We sometimes hear talk as to the wearing out of varieties. I think all Apple growers will agree that whatever may be the product, Cox's Orange Pippin has never flowered more finely than this year. But many of our oldest Apples, the fine old Deux-ans, for instance, are as robust and free-bearing as ever. A. D.

RHUS TOXICODENDRON.—Would you be so kind to help us solve a question: Will Ivy or Ampelopsis cause a skin irritation and eczema? [No.] The house here, which is an old one, is covered with different species of *Hedera*, *Ampelopsis*, *Clematis*, &c. I have enclosed for your examination a shoot of those that directly surround my mistress's windows; in the latter there are boxes filled with

plants. Last week I had them removed to refill, and the lady transplanted some of the plants; also cut off a few shoots of the *Ampelopsis*. A few days after she had a severe attack of eczema, confining her to her room. The man that removed the boxes also had a slight attack on his arm. If ever I trim up at all I am affected. F. Crook, Head Gardener, Gunville Manor House, near Blandford. [The plant sent is a *Rhus*, and not an *Ampelopsis*, which, like the Ivy, is quite harmless. Many years ago, by an unfortunate mistake, the *Rhus* in question was sent out as a new species of *Ampelopsis*, which it greatly resembles in foliage. Ever since that time we have occasionally heard of incidents like that recorded. ED.]

CYMBIDIUM 'ANSONI.'—We notice this novelty is not included in the official list of awards published in your last week's issue. The plant gained an Award of Merit. Hugh Low & Co.

CULTIVATION OF BAMBOOS.—May I contribute a brief note in reply to Mr. Gauntlet's comment on my article on the cultivation of Bamboos. Those species referred to by him, viz., *Arundinaria anceps*, *A. Fortunei*, *Phyllostachys bambusoides*, with the exception, perhaps, of a few growers, are so far quite in their infancy in this country, and have not yet attained to any great height with anyone. I thus casually made reference to these species as being suitable for forming edgings to groups of the taller species of Bamboos. At the same time, I knew that they were not of the pigmy class, as represented by *Bambusa pygmaea* or *B. tessellata*. This statement read by anyone who, like myself, was accustomed to growing Bamboos on the Riviera from 4 feet to 30 or 40 feet in height, would easily understand my reason for mentioning the species above-named. At the same time, since Mr. Gauntlet has them growing so well in Cornwall, with promise of further development, they may take their place among such species as *Phyllostachys aurea*, &c. But I think there are few indeed who will accept the advice to leave established Bamboos to take care of themselves, although I admit they are difficult to kill; but in a cultural article matters of cultivation have to be considered. It has been my great pleasure for a period of twenty years to have had facilities for studying Bamboos under varying conditions, and my experience is, that the best results have always followed a high state of cultivation. I would emphasize the cultural notes noticed by Mr. Gauntlet, by adding that whilst on the Riviera, where Bamboos grow luxuriantly, large quantities of the tall canes are removed in the spring in order to give size to the young ones. This is done previously to affording the plants a heavy dressing of cow-manure or liquid-manure. Then during the summer months water is allowed to run from a hose over the roots all night, and water is thus afforded twice a week. This treatment always gave fine results with *Phyllostachys quadrangularis*, *P. aurea*, *P. nigra*, *P. vulgaris*, and many others, which attained to a height and breadth rarely dreamt of by our gardeners at home. I have also seen hedges and groups of Bamboos left to themselves, and afforded no water, but still living, if not very pleasant objects for a lover of plants to look upon, the leaves being brown, and the canes of diminutive size. Mr. Freeman Mitford, in his valuable work *The Bamboo Garden*, appears as a very strong advocate of a generous treatment of Bamboos, especially during dry weather in the early summer months, when the new canes are developing. I would ask Mr. Gauntlet to notice the first line on p. 19 of this book. J. Benbow, Abbotsbury.

LILIES FOR PLANTING OUT-OF-DOORS.—Does Mr. Williamson seriously recommend (p. 305) *Lilium auratum*, *L. Humboldti*, and *L. Washingtonianum*, as being trustworthy garden plants? If so, I venture to think that his opinion will be shared by very few cultivators of Lilies. Not a word too much can be said in their favour when they do succeed, but this is only in such isolated instances. A general recommendation like this is misleading, when founded on the behaviour of any plant in one particular garden. W. T.

STRAWBERRIES IN BARRELS.—"A. D.'s" note on "Strawberries in Barrels" on p. 332, recalls to mind the use I and others made of barrels several years ago for growing *Paraley* in winter. Like most "crazes," this is not new. My late employer,

the late J. J. Jones, Esq., Abberley Hall, suggested it to me, he having seen these barrels used in friend's small garden. I think he said the practice was recommended in *Glenny for the Gardener*, some other such old gardening-book; so I was rather amused the other day when a circus arrived offering barrels for sale, the vendor is saying that the article was "provisionally patented." However, I think the growing of fruit in them in small gardens in winter is likely to be more satisfactory than Strawberry-growing. The barrels take up little room in an amateur's greenhouse. To ensure the barrels becoming "green" with *Paraley* before winter, the seed should be sown at the present time in small pots, and the plants kept growing in them until they reach a suitable size. When ready for arranging in the barrels, the soil is placed in layers, and the tops of the plants pushed through from the inside, at the same time taking care not to break the balls, and so on, until the barrel is filled, finishing off the top with a good planting. Of course, the barrels require attention in the matter of water, and should remain in open air until hard frosts are feared, when they will prove to be no mean ornament in the corner of an amateur's greenhouse. A. Young, Wilton Gardens, Stourport. [This barrel-culture has been referred to years ago in the *Gardeners' Chronicle*. The "patented" barrel our correspondent mentions is specially fitted, we presume. ED.]

OUR SUMMERS IN LONDON.—It is a curious and of interest, I think, at the present time is throughout this century the summers of years ending in 0 (at Greenwich) have been (a) generally cool, and (b) nearly always cooler than the following table:—

Year.	(a) M.T.S.	Relation to average.	Year.	(b) M.T.S.	Relation to average.
1800	68.1	+ 1.7	1806	64.3	- 2.9
1810	60.8	- 0.6	1816	57.8	- 3.4
1820	60.4	- 1.0	1826	66.3	+ 1.9
1830	60.1	- 1.3	1836	62.0	+ 0.6
1840	61.0	- 0.4	1846	64.4	+ 3.0
1850	61.4	average	1856	61.7	+ 0.3
1860	57.4	- 4.0	1866	61.1	- 0.3
1870	63.2	+ 1.8	1876	63.5	+ 2.1
1880	60.6	- 0.8	1886	61.0	- 0.4
1890	59.1	- 2.3	1896	62.6	+ 1.2

The average mean temperature of summers (from 1800-99 = 61.4°. (It is right to say that the values prior to 1841 are less reliable than the others.) Thus, in only one decade (1810-19) is the position reversed. It will be found, also, comparing the summers of years ending in 0 with those of the previous years ending in 6, that the former are generally cooler. There are two explanations. The facts here given may be regarded as part of the larger fact, that the group of summers in the earlier half of a decade (as reckoned from 0 to 9) is generally cooler than that in the latter half. Alex. B. MacDowall, F.R.Met.S.

THE ROYAL HORTICULTURAL SOCIETY.—If you have opened your columns to suggestions from Fellows of the Royal Horticultural Society as a best means of celebrating the Centenary of the Society, may I venture to suggest that in view of the great diversity of opinion as to the wisdom of the present proposals, the Council be asked to reconsider their present decision. I cannot think that many of the Fellows, who, like myself, are very busily engaged, and lack the time to make a day's trip to London merely to vote on a question, would yet like to have had a voice in a matter which must inevitably, and most materially, affect the financial position of the Society to which we are proud to belong. It would seem to have been a more sure way of obtaining an accurate expression of opinion for the Council to have invited suggestions from leading fellows, and to have formulated the own. From the various proposals thus submitted the Council could have selected those which in opinion were best suited to the needs and the power financial and otherwise, of the Society, and have printed them in brief on a slip of paper, to be sent to every Fellow with the reminder of the need for his subscription. This slip would have been marked and returned to the Secretary by every

Fellow who really was interested in the work of the Society, and the Council would then have been able to go to work backed by the assurance which now in great measure seems to be lacking, that they had the hearty support, and were carrying out the wishes of the majority of the Fellows. I cannot but agree with the remark of "F.R.H.S." in your last issue, that, judging from the statements which have recently been made both by supporters and opponents of the proposed removal, Chiswick is not worth its up-keeping; and it certainly is no inducement to support a new venture to be told that it is rendered necessary in consequence of the failure on the part of the Society's servants to maintain the fertility of the soil. Be this, however, as it may, I would still propose that three or four suggestions be made by the Council and sent to each Fellow with a request to indicate that suggestion which he deems most needed in the interests of the Society, and that having thus taken the real opinion of the Fellows, the Council proceed to act thereon with the assurance of active support. Personally, I should much prefer a central hall or some of horticulture, with offices, library, laboratory, lecture-rooms, and ample provision for shows and floral exhibitions of all kinds, and I honestly believe that it would be most conducive to the objects for which the Society exists. Notwithstanding, if on a vote being taken, I found myself in the minority, I should loyally support any measure which others had thought wiser and better. The financial question seems to me a very serious one, both in the original outlay and the still more serious matter of up-keeping. A central home, however, while it might in the outset cost an equal sum, would, if rightly managed, supply a yearly income, for there are many uses to which the hall might be put, such as the holding of sales of large collections of Orchids, &c., apart from the dust, smoke, and bustle of existing sale-rooms, and where the plants could be individually inspected, instead of being crammed together as they are now. There is very much weight in the objection to the usefulness of Chiswick, that the methods adopted, and the results of trials obtained in any one given spot of the United Kingdom can furnish no safe rules for culture, nor sufficient index of the results which would follow where the conditions of soil, atmosphere, climate, and water were wholly different. More sure and safe guides and results would, I think, follow from experiments made in seed grounds in different parts of the country; but the arrangements for such trials, as well as the formulating of conditions and results, would be a very important and useful work for our Society, and productive of more benefit to the professional and amateur grower than any system could possibly be if confined to one given spot. *W. Goodlife, Worthing.*

— There would seem to be some remarkably unpractical persons amongst the Fellows of the Royal Horticultural Society, of whom one in your columns last week, suggested that the "sale" of Chiswick Gardens, its houses and plants, and with the cash thus raised build a horticultural hall. The sale of the lease of Chiswick houses, and all on it, will not bring so many hundred of pounds as the proposed hall will cost thousands. This suggestion is very much on a par with a proposal made by a contemporary, that because tents at the Temple Gardens gave but 12,000 square feet of space for the recent show, and 30,000 were needed, that it was a good reason for erecting a horticultural hall. Fancy a hall-floor giving tabling space of 30,000 feet, with 20,000 feet for visitors' perambulations. That would need a building as big as the whole of the Temple Gardens, and a site costing fully £50,000. What a pity it is that some consideration is not given to these things, before suggestions are thus made. The Fellows of the Royal Horticultural Society have to face a most important problem, and to meet with candour, equanimity, and good sense, proposals of the deepest interest. But no help in the discussion is given by criticisms that are on the face of them absurd. A writer elsewhere talks about an expenditure of £20,000 on a horticultural college, where the Council never has and never will propose to expend a single halfpenny on such an object. By the by, how is it that persons who do not live at Chiswick, declare that the surroundings there are most beautiful for vegetation? whilst Mr. Hudson and Mr. S. T. Wright, who of all men do know, declare absolutely the reverse. *A. Dean.* [Is our correspondent in the secrets of the Society? *Ed.*]

BOLTING CABBAGES.—I have seen breadths of Cabbages in many places, and of all sorts, and never

saw fewer better than this season. I have not heard of any complaint respecting bolting. I have heard of one group of allotments of some of the plants here and there, being apparently stunted because of either an attacking frost affecting the stems, or because the stems had been bored by maggots. Still these complaints were few. Young Cabbages have been pretty plentiful in the market, and for the time of year relatively cheap. *A.*

— So far as I can ascertain from my neighbours, there is not more bolting among Cabbages than in other years. As regards my own, I have six plants out of 600 which have bolted, so there is not much to complain of in this, considering the dry time when planted, and rather severe winter. The 600 represent two varieties, viz., Sutton's April, and Sutton's Flower of the Spring. I am inclined to think late planting has something to do with plants running to seed, as has also inferior varieties. *A. J. Long, Wyfold Court Gardens.*

FUNGUS DISEASE IN YOUNG CUCUMBER-PLANTS.—The contribution of Mr. E. Jenkins last week is an important supplement to my necessarily brief account of this disease. If growers with experience would state their observations as clearly as Mr. Jenkins has done, the results would be appreciated by everyone; by none more than myself and fellow workers on fungous diseases. The observations given are quite consistent with general experience of the damping-off fungus; the lowering of temperature of young plants weakens them at a susceptible period of life, and gives the fungus its opportunity. Lack of ventilation does the same, while it also favours development of the foe. No one knows better than I do the difficulty of identifying the real cause of disease after the specimens have had the double postal journey to London, then to Leeds. After such a journey it is very easy to find several fungi of different sorts, and one finds it difficult to say which is the true first cause of disease. No disease can be thoroughly investigated which is not under continuous observation on the living plant; unfortunately, the opportunities of a teacher are limited in this direction, while, as a rule, the training of the grower, who can watch the plants grow, does not extend to the outs and ins of fungus life. If, however, the observer of the growing plants and the fungus student will co-operate, and state their observations in these pages, progress would be assured. In contributions to this paper I have again and again, with little success, tried to draw the practical grower, because I consider him the best adviser in the treatment of plant-diseases; we can but say something of the cause. *W. G. S., Leeds.*

THE SALE OF CHEMICAL COMPOUNDS CONTAINING POISON FOR TECHNICAL AND TRADE PURPOSES ONLY.—As the Secretary to the newly formed Trade Protection Society "with a very long name," alluded to in your issue for May 19, allow me to thank you upon behalf of our organization for your impartial remarks with respect to the objects for which it has been called into existence. True it is, as you very forcibly observe, that whilst the registered pharmacist usually deals only with minute quantities of poison, the ordinary vendors of weed-killers, insecticides, &c., handle the substances in bulk, so that one innocent looking package of moderate size may, and frequently does, contain a considerable amount of poison. It should be borne in mind, however, that the weed-killers, insecticides, &c., to which you refer, are not in any way compounded or dispensed by the chemist and druggist, who now claims a monopoly in their sale by retail. They are, upon the contrary, already manufactured specialties for industrial purposes only, carefully put up in sealed packages, and ranking, for the most part, under the heading "Proprietary Articles"—a class of commodity the sale of which, as was admitted by Mr. R. H. Parker, at the recent dinner of the Western Chemists' Association, "removes the pharmacist from the object of his training and places him in the position of a mere huckster" (vide *The Chemist and Druggist*, May 26, 1900, p. 800). It should be remembered, also, that until quite recently registered pharmacists, save in small country districts, have done comparatively little business in certain of the specially prepared chemical compounds which, although they may undoubtedly contain a poison or poisons, are intended solely for technical or trade purposes—more especially in the agricultural and horticultural industries. The trade in such articles—many of

which are of a bulky character and unsuitable for a pharmacy—has been chiefly carried on by seedsmen, nurserymen, oil and colourmen, hardware dealers, agricultural agents, &c., and the principal argument of the newly formed Protection Society is that what is popularly known as "The Poisons Act," was merely meant to prevent unqualified persons acting as pharmacists, and selling or keeping open shop for retailing, dispensing, or compounding poisons, either for the preparation of medicine or for medicinal use. It was never, we contend, desired to withdraw an important branch of trade from a respectable class of shopkeepers, who have conducted it properly for many years, and to create a monopoly for the unaccustomed chemist and druggist, who should be a monopolist only *quid* properly qualified pharmacist, and not as a "mere huckster of manufactured articles." As you very justly say, "It is not the interest of any particular class of trader that has to be considered, but the safety of the public." No reasonable person would for a moment challenge the usefulness of "The Poisons Act," in requiring with the utmost rigour the care and skill of a registered pharmacist in the compounding and sale of poisons in medicine, and for medicinal use. We fail entirely, however, to realise that the safety of the public is at all enhanced by the vending of a sealed packet of (say) a proprietary weed-killer, properly labelled "Poison," being taken away from the seedman and nurseryman who for years has known its nature and practical value, and the monopoly given to a certified pharmacist to whom—

A Primrose by a river's brim,
A yellow Primrose was to him,
And it was nothing more;

and who understands as much, perhaps, about the agricultural or horticultural merits of the article for which he claims a monopoly, as the seedman or nurseryman does about the really most reliable brand in belladonna plasters. *Au reste*, no amount of legislation, or of "proper and well defined restrictions"—which can be as well complied with by a respectable nurseryman as by a trading chemist—will ever prevent the "designedly wicked" obtaining and making improper use of poison. It is utterly useless, therefore, as well as unreasonable, to unnecessarily hamper a large, important, and thoroughly experienced body of commercial experts in favour of a small section of the trading community, who are undoubtedly specialists in their own particular line, but who have little or no practical acquaintance with an old-established industry of which they now claim an unauthorised monopoly. *Thos. G. Dobbs, Secretary to the Traders in Poisons and Poisonous Compounds for Technical and Trade Purposes Protection Society, 5 & 6, Clement's Inn, Strand, London, W.C.*

SOCIETIES.

THE TEMPLE SHOW.

(Concluded from p. 386.)

MAY 23, 24, 25.—As we are now obliged to prepare for press on Wednesdays, some portion of our report was deferred, but as promised in our last issue, we now conclude our notice of the grand exhibition in the Temple Gardens, with some remarks on the Fruit, Roses, and various other exhibits. In addition also to several illustrations published last week, from sketches made by our artist in the tents, we are now able to give illustrations of some interesting plants and groups, from photographs, taken on the second day of the Show. We regret that none of these will furnish our readers with illustrations of novel arrangement, or grouping, as they might be expected to do; but our criticisms in this respect must be modified by the knowledge, that the conditions of the Temple Show are so much the same year after year (and apparently the Council has not the desire to materially alter them), that there is little inducement or even opportunity for individual exhibitors to introduce any other system than that they now employ. It would be well if the Council, falling any scheme of their own, would give Mr. WRIGHT, as Superintendent of the Show, full authority and encouragement to so arrange the exhibits on a future occasion that visitors will not know exactly where to find certain groups of plants as they now do, without having occasion to consult their catalogues. This would entail a dislodgement of exhibitors from their time-honoured positions, but if the Council desired a re-arrangement, and made that desire known, there is little doubt but Mr. WRIGHT with his accustomed tact, would be able to carry the matter out without causing any unpleasantness amongst the exhibitors.

Now we can look back at the Show, its magnificence can be well appreciated. The exhibits on the whole were of excellent quality, diverse, and choice; and where there were indications of culture, in all cases it was of the highest type.

It is satisfactory to see so many Gold Medals awarded during the year to amateurs. At the Temple, one was given to LEOPOLD DE ROTHSCHILD, Esq., for fruit-trees and Water-Lilies; one to Sir FREDERICK WIGAN, Bart., for one of the brightest groups of Orchids it would be possible to stage; and one to Lord WANTAGE for a collection of fruit illustrated on p. 339. Though nominally these medals are given to the owners of these exhibits, no one will hesitate for a moment to allow that they are really recognitions of superb cultivation on the part of the gardeners. Mr. J. Hudson in the case of Leopold de Rothschild, Esq.; Mr. H. W. Young, the present writer of our "Orchid Calendar," in the case of Sir Frederick Wigan, Bart.; and Mr. Fyfe in respect to the exhibit from Lord Wantage.

We may remind exhibitors and visitors alike that they are deeply indebted to the Rev. W. Wilks, M.A., and Mr. Reader from the Society's office, and Mr. Wright (Superintendent), and Mr. Humphries (Assistant Superintendent at Chiswick), for their excellent management of the Show, which entails upon them a large amount of work and anxiety.

ROSES.

The exhibition in the Temple Gardens always includes a grand show of Roses; so prodigal is the display, and so fine and brilliant the blossoms, that we wonder if the average exhibitor reflects for a moment that all this wealth of Roses is produced under glass. Gardeners, of course, know that this is so, for English Roses under Nature's sky are seldom to be gathered before June, nor abundantly until this month has sped part of its course.

Messrs. Wm. PAUL & SON, Waltham Cross, Herts., are seldom behind in the exhibition of Roses in pots, or of blossoms grown indoors. The plants included dwarf, pyramidal, and standard-trained specimens, and whilst all very beautiful, the pyramids of Claire Jacquier and Crimson Rambler were magnificent beyond description. How many, we wonder, who saw Claire Jacquier, clothed with hundreds of its pretty white blossoms with orange centre, decided to obtain the variety for their own garden? These plants and others were supplemented by a glorious show of cut blooms, and the plants and cut blooms were so tastefully and effectively disposed, as to make the exhibit even more attractive. Amongst these blooms was a lot of Climbing Devonensis, larger and finer than we remember to have seen the variety; La France, Mrs. R. G. Sherman Crawford, Spencer, Margaret Dickson, the pretty China Rose Duke of York, the ever popular Mrs. John Laing, baskets of Clio, and others.

Mr. CHAS. TURNER, of the Royal Nurseries, Slough, made as usual a great display across the end of the large Orchard-tent. In the centre of this display was a bank of dwarf-trained Roses, and of these the following varieties were the more prominent, Mrs. John Laing, Crimson Rambler, Celine Forestier, Camille Bernardin, Perle d'Or, Madame Lacharme, delicate pink, very large, and Spencer.

Messrs. PAUL & SON, The Old Nurseries, Cheshunt, furnished their usual corner of the big tent with a fine lot of plants, standards and dwarfs. We noticed particularly fine blooms upon some of these, especially the varieties, Marquise de Litta, Mme. de Watteville, J. B. M. Camm, Ulrich Brunner, H. T. Antoine Riviere, one of the most delightfully tinted in the group; Souvenir de President Carnot, Rev. Allen Cheales, and a host of other choice varieties, including some large plants of the new but familiar Rambler Rose Payche, and a new Rose of their own raising called, by permission, Queen of Sweden. The exhibit was remarkable for the quality of the standards it included, all of them being first rate.

Mr. B. R. CANT, Colchester, though exhibiting a smaller group than those remarked upon above, had some very pretty dwarf plants in pots, about 7 ins., and a moderate collection of fine cut blooms. Mrs. John Laing, and Suzanne-Marie Rodocanachi, amongst others, were capital as plants and as cut blooms.

Messrs. FRANK CANT & CO., Braiswick Nursery, Colchester, had a group of Roses in pots, for the greater part dwarf plants, but relieved by a few standards. Amongst the new ones was one named Muriel, a very richly coloured flower. The group was a very representative one, and illustrated the beauty of the Banksian and Polyantha Roses, as well as the show varieties.

In the same tent was a group of Roses from Mr. W. RUMSEY, Joyning's Nurseries, Waltham Cross, London. N. This group was composed of good sized plants of some breadth, and they were well flowered. The plants were faced with large boxes laden with cut blossoms of the best varieties.

The new Rose Sunrise was again well shown as cut blooms by Mr. G. W. PIPER, Nurseryman, Uckfield; and the old, seldom seen Fortune's Yellow, by Mr. Fyfe, gr. to Lord WANTAGE, Lockinge Park, where, under glass, it is a magnificent feature.

BEGONIAS.

In addition to the Begonias remarked upon in our last issue, there was a very fine exhibit of tuberous-rooted varieties from Mr. H. J. JONES, Rye-croft Nursery, Hither Green, Lewisham. The varieties included single-flowered and double ones, and the strain was remarkable for the bold character of the flowers and flower-spikes; most of the flowers were thus borne well above the foliage on erect stems, and were more or less "starers." One of the gems of the double-flowered varieties was H. J. Jones, with large, bold

flowers of orange-scarlet colour; Harrison Dick may also be mentioned as a pleasing full pink flower; while Ruby Russell, white; Mrs. J. Baxter, light pink; Dr. Shaw, yellow, are all of superior merit. Among single-flowered varieties, Mrs. Walter Finch, light crimson; Nero, much deeper crimson; Sensation, with pale yellow centre and pink edge; Queen of Roses, Mrs. T. Lunt, orange colour, were some of the best which appeared in Mr. JONES' excellent and tastefully-arranged group of plants.

Messrs. SUTTON & SONS, Reading, made an exhibit of fibrous-rooted Begonias, especially effective for bedding in the open; and appropriately, the plants were put out in beds on the grass in the Temple Gardens. From Miniature White to Crimson Gem there were many shades of colour, and as these freely-bloomed plants had been raised from seeds sown in January, they illustrated how easily such displays may be obtained from these plants, as they occasion no trouble or housing during winter.

NEMESIAS.

A very large group of Nemesias in pots was shown by Messrs. SUTTON & SONS, Reading. These were of two types. The strain brought to notice by Messrs. Sutton & Sons some years ago under the name of N. strumosa Suttoni, was shown in four colours—yellow, pink, orange, and crimson. In addition to these a very much larger exhibit was made of a strain now described as "hybrids," though what they were hybridised with was not stated, and named N. s. Suttoni nana compacta. This strain has much smaller flowers, and the variation in colour they afford is very rich, the habit of the plants being rather dwarfer. Some of the older type were bedded out in the open. This annual may be obtained in bloom in pots during a large share of the year by successive sowings of seed.

EXHIBITS OUT-OF-DOORS.

Never before has greater use been made of the space out-of-doors for the exhibition of hardy trees and shrubs, &c. As the visitor entered the gate upon the Embankment and passed to the centre of the gardens, the pathway was flanked by several very interesting exhibits that were not given the attention they would have obtained from the public had the weather upon the first day been less showery.

The most extensive and at the same time a very admirable collection of trees and shrubs, was one from Messrs. FISHER, SON, & SIBBAY, Ltd., Handsworth Nurseries, Sheffield (see p. 341). In the centre of this group was a large batch of plants of Acer polymorphum atro-purpureum, and "V. R." in large capital letters were marked out in these with plants of A. japonicum aureum. The Japanese Maples indeed were shown in considerable quantity in this group, but not to the exclusion of other fine plants, as Quercus concordia, a richly-coloured golden Oak, Vitis Colnetiae, Sambucus racemosa, plumosa aurea; many pretty varieties of variegated and green-leaved Ivies, including one with bold green leaves named Hedera arborea Amurensis; Cornus aurea, some of the less common Conifers, Bambos, &c.

Japanese Maples were more numerous at this show than ever. Messrs. W. FROMOW & SONS, Chiswick; Mr. J. RUSSELL, Richmond; and Messrs. T. CAIRNS & SON, Tunbridge Wells, each having large collections of plants in great variety. A smaller group was also shown by Messrs. WALLACE & CO., Kilnfield Gardens, Colchester.

Messrs. R. SMITH & CO., Worcester, had a group of hardy plants, consisting chiefly of rare or new forms of well-known Conifers. The plants were pretty moderate-sized specimens in pots. We noticed Pinus strobus nanus, Abies pinsapo glauca, and the exceedingly effective Picea pungens glauca, and Picea pungens pendula. Abies Remontii, Abies concolor, violacea, A. Nordmanniana, and Cedrus Deodara alba spica, were a few of the valuable plants shown from Worcester.

Mr. J. RUSSELL, Richmond, had a group in which rare forms of Ivies were prominent, hardy Rhododendrons, Azaleas, and general "picture" plants.

Messrs. J. LAING & SONS, Forest Hill Nurseries, London, S.E., had a group of miscellaneous plants, such as Roses, Acers, Rhododendrons, Conifers, &c.

Messrs. PAUL & SON, Cheshunt, had a group in which we noticed a fine purple-leaved Catalpa, a number of varieties of Lilac, Cytisus Andreanus, Laurus variegata, Eulalia gracillima, Bambos, &c.

Messrs. J. CHEAL & SONS, Lowfield Nurseries, near Crawley, contributed a further group of similar species, Lilacs, Rhododendrons, Maples, Azalea amena, Philadelphias, Kerria japonica, &c.

CLIPPED TREES.

Illustrations of Topiary have not been wanting at several of the more recent Temple Shows, and last year we took the opportunity to illustrate some specimens then shown by Messrs. J. Cheal & Sons. But it has been remarked for some time past that there is a growing tendency on the part of gentlemen who have to make new gardens to introduce into them the Topiary feature. It may be, and we think it must be, that owners of gardens look upon these trees as objects of art rather than as trees, and are anxious to obtain specimens just in the same way as they would old sundials. There is a tendency now-a-days to favour the "quaint," and these vegetable monstrosities are considered to be such. If we are careful to first point out that any word of praise we can give such exhibits must be wholly from the point of view of the "trainer," then the extensive and very remarkable collection shown by Messrs. CURTISH & SONS, Highgate, and the smaller group from Messrs. CHEAL, were worthy of remark. Some of the specimens, whether they mimicked a peacock, a boat, a monkey, a sheep, or a table with winglasses, bore such evident indication of skillful and painstaking work, that as

objects of skillful but ill-advised effort they were excellent (see p. 343). Messrs. CURTISH's group was the largest that has been exhibited at a show in London for years.

FRUIT.

Compared with other exhibits at the show, fruit was not largely represented, but that which was staged was excellent in quality. Considering it is yet early in the season, Grapes were good both in bunch and berry, but colour was deficient in the white varieties. Nectarines were shown in first-rate form, the fruits being large and well coloured. On the other hand, very few dishes of Peaches were staged. Cherries were exceptionally good, those shown by Messrs. J. HUDSON and J. MCINDOE calling for special mention. Melons were present in good numbers, and one named Buscot Park Hero was thought sufficiently good for the distinction of an Award of Merit.

Orchard-house trees were staged by LEOPOLD DE ROTHSCHILD, Esq. (gr., Mr. J. Hudson), whose group covered 20 square feet of space; and Messrs. T. RIVERS & SONS, who staged a large group of Cardinal Nectarines grown in pots.

A nice collection of fruit was shown by Lord WANTAGE, Lockinge Park, Wantage (gr., Mr. Fyfe), and it was staged in quite a novel and picturesque manner. The fruit was very choice, including pretty little Melons, rather less in size than the mammoth fruits of Citrus medica, White Marseilles Figs, Royal Sovereign Strawberries, two dishes of Oranges, several dishes of small Apples, small fruits of Monstera deliciosa, yellow and red Tomatoes, including tiny, almost perfectly round fruits of Sutton's Dessert; Cherries Empress Eugénie and twelve bunches of Grapes, of which three of Madresfield Court deserve special mention. All of these fruits were arranged upon wire stands or dishes of varying height, but all of them some distance above the table; and the fruit had almost to be looked for amidst the most enchanting blossoms of that delightful Rose, Fortune's Yellow, that is one of the features of Lord WANTAGE's garden. On p. 339 we have illustrated this exhibit, which, although exceedingly pretty, would perhaps have been better staged had the choice fruits been given a little more prominence among the fragrant, unique-tinted Roses.

A magnificent collection of fruit came from Sir J. PRASE, Bt., M.P., Hutton Hall, Gulsborough, Yorks (gr., Mr. J. McIndoe). It included Grapes, Foster's Seedling, Black Hamburg, and Early Summer Frontignan. There were grand Nectarines, in Early Rivers, and Précoce de Croncelles, Hutton Hall Green Flesh, Scarlet Premier Melons, among others were good. There were Citrons, Imperial Lemons, two varieties of Tomatoes, Brown Turkey Figs, Royal Sovereign Strawberry, Downton, and Bigarreau Napoleon Cherries, Czar Plums, and Melon Apples, in addition to a fruit of Charlotte Rothschild Pine, making a collection thoroughly worthy the Silver Cup awarded.

A collection of fruit shown by G. A. HENDERSON, Esq., M.P., Buscot Park, Faringdon, Berks (gr., Mr. W. L. Bastin), was composed of Melons in five varieties, viz.:—Pride of Stourbridge, Hero of Lockinge, Earl's Favourite, British Queen, and Buscot Park Hero, the latter gaining an award of merit. The remainder of the exhibit consisted of small dishes of Apples, and two dishes of Tomatoes. (Awarded a Silver Gilt Knightian Medal.) This collection was staged in a similar manner to that shown from the same garden at the Temple Show last year, when it was photographed for the *Gardeners' Chronicle*.

Messrs. GEO. BUNYARD & CO., Maidstone, again showed how marvelously well Apples may be preserved, by staging one hundred distinct varieties in as many dishes, all of which presented an appearance as good as might be expected in December. Some of the freshest were Belle Pontoise, Hornmead's Pearmain, Stalped Seedling, Blumark, Chalmers Wonder, Sanspareil, Annie Elizabeth, Muriel's Seedling, Lane's Prince Albert, Newton Wonder, Smart's Prince Arthur, &c. But others were shown well that should now be quite out of season—Cox's Orange Pippin, for instance—which was in surprisingly good condition. A Silver Cup was awarded to Messrs. BUNYARD.

Mr. JOHN WATKINS, Pomona Farm, Withington, Hereford, also staged one hundred dishes of Apples in one hundred varieties, and the fruits were in excellent condition. Striped Seedling, Royal Russet, Calville Malingre, Calville Garibaldi, Tillington Seedling, Baxter's Pearmain, Hoary Morning, and a fine dish of May Queen were particularly fine samples. This exhibit was awarded a Silver-gilt Flora Medal.

Messrs. T. RIVERS & SONS, of Sawbridgeworth, staged three baskets of fruits of Cardinal Nectarine, also a dish each of Duke of York, Duchess of York, and Prince Edward Peaches, the last-named being by far the largest and most handsomely coloured of the trio. This exhibit was backed up with three small trees in pots of Cardinal Nectarine, bearing fruit.

In the fine collection of orchard-house trees exhibited by LEOPOLD DE ROTHSCHILD, Esq. (gr., Mr. J. Hudson), and already referred to, were to be seen well-grown specimens in fruit of such varieties of Cherries as Frogmore Bigarreau, Empress Eugénie, Bigarreau de Schrecken, Transparent, and Count Atthens Gage Plums, Cardinal and Early Rivers Nectarines, Early Beatrice Peach, and Grape Royal Muscadine. The arrangement and grouping of the trees was admirably conceived, the pots being hidden from view by the employment of Aralias, Maples, &c. In front of this group, and arranged in punnets, were shown fine fruits of several of the foregoing varieties of Cherries, Cardinal Nectarine and Early Prolific Plum. To this exhibit a Gold Medal was awarded.

The group of fruit-trees in pots, arranged in the same tent by Messrs. T. RIVERS & SONS, consisted of fine specimen trees

of Cardinal Nectarine. The trees were well cropped, the fruits being large in size, and highly coloured. This variety is said to ripen ten days in advance of Early Rivers (Silver Cup).

Messrs. CARTER, of High Holborn, exhibited four typical fruits of Blenheim Orange Melon.

PARIS EXHIBITION.

THE third Horticultural Exhibition, which opened on May 23, was very brilliant. The two large greenhouses available not providing sufficient accommodation for the exhibits, though some were arranged in the open air, the organising-committee were authorised to make use also of the large *Salle des Fêtes* at the Champ de Mars. This hall was filled with splendid samples of Rhododendrons and Azaleas from MM. CAUX ET FILS of Chatenay, and from M. MOSER of Versailles; MM. CROUX also sent some deciduous shrubs; MM. LÉVY ET FILS, JUREAU, GEORGE BOUCHER ET NIKLAUS magnificent Roses.

The effect of the plants was very fine, as they were arranged in concentric borders round a fine mass of Rhododendrons and Azaleas from M. MOSER. In the same hall was also a good show of vegetables from MM. VILMORIN ET CIE.

REONIER, of Fontenay-sous-Bois, the first collection including Cattleya Mossie, almost all the flowers with white sepals and petals; the second lot, Phalenopsis amabilis, Aphrodite, and Schilleriana. Only two amateurs, M. ROBERT LEBAUDY, of Bougival, and M. MAONE, of Boulogne-sur-Seine, sent interesting collections.

The Orchids, taken as a whole, were fine, and well varied, but did not include any striking novelties. M. MARON, of Brunoy, staged chiefly hybrids obtained by him; among them Lælio-Cattleya Martineti var. flavescens, a new variety, in which the petals and sepals have the colouring of Lælia grandis tenebrosa, but are rather clearer; the lip is a rich purplish-red. I would further mention Lælio-Cattleya x Grand Duchesse Elizabeth, L. x Imperatrice de Russie, Cattleya x Gaskelliana superba, some pretty varieties of C. Mossie, Epidendrum x vitellino Brienianum, and other kinds.

MM. DALLEMAGNE ET CIE. sent some fine Miltonia vexillaria, with large flowers; and some good varieties of Cattleya Mossie and C. Mendelii. There were also fine Cattleyas in the groups staged by M. BERT, MM. DUVAL ET FILS, M. BERANEK, and M. CAPPE. M. DALLÉ had, as on previous occasions, grouped his Orchids very elegantly among Palms, Ferns, Dracenas, and other ornamental plants.

M. JALLIER, of Neuilly, formed a pretty little group, in

hung with photographs of the houses and gardens of the Imperial estate. Finally, this house contained a large quantity of fruit, principally Apples, sent by various growers in the United States.

M. LOUBET, President of the Republic, visited the Exhibition on Wednesday morning, accompanied by M. MILLERAND Minister of Commerce; M. JEAN DUPUY, Minister of Agriculture; and several other officials. They were received and shown round by MM. VIGER, ALBERT TRUFFAUT, CHATENAY, DOIN, GEORGES MARTIN, and other members of the organisation committee. The distinguished visitors expressed much pleasure and admiration at the excellence of the horticultural display.

MISCELLANEOUS SOCIETIES.

Wargrave Gardeners'.—The last of the fortnightly meetings for this season was held on May 18. The Hon. Sec. (Mr. H. Coleby) read a paper on "Weeds," in which he pointed out their use in the economy of Nature, either as food for birds, &c., or tending to support the salubrity of the atmosphere, or as furnishing products useful in medicine. Their extensive diffusion over the earth by means of various appendages, &c., and their powers of vitality, were referred to. The exhibits included some plants of Azalea mollis in bloom, by Mr. Pope; Cabbages, by Mr. Fullbrook; and a basket of Strawberries (Royal Sovereign) by Mr. Haskett, for which he was awarded a Cultural Certificate.

Shirley and Surrounding Districts Gardeners' and Amateurs' Mutual Improvement Association.—The monthly meeting of the above Society was held at the Parish Rooms, Shirley, Southampton, on Monday, 21st ult., Mr. B. Ladham, F.R.H.S., presiding over a good attendance of members. An interesting discussion took place on "Flowering Shrubs and Trees," initiated by Mr. S. Verdon, of the Red Lodge Nurseries, Basset. The members of the above had their annual outing on Thursday, May 24, visiting the great Temple Show.

Beckenham Horticultural.—Mr. A. D. HALL, Principal of the South-Eastern Agricultural College, Wye, gave an interesting and instructive lecture before the members of the Beckenham Horticultural Society on Friday, May 25, entitled, "The English Tulip, its History, Cultivation, &c." Introduced at the close of the sixteenth century from Turkey, where some 153 varieties were cultivated, they were taken up by the Dutch, who failed to make any great improvements. From 1830 to 1850 they were taken up by English growers, and became the flower of the day. Marked improvements, especially the clear centre, were obtained, and bulbs fetched enormous prices, which eventually checked their culture; and until the last few years they had gone almost out of cultivation, a few growers in the North and Midlands only having good collections. Of late years, thanks to the National Tulip Society, they are being taken up by south country florists, and not the least among these is Mr. Hall, who illustrated his remarks by splendid specimens of the bizarres, bybloemens, roses, breeders, &c., which secured three 1sts, one 3rd, and two premier blooms at the recent National Tulip Society's show. The English Tulip is essentially the flower of an enthusiast. The seedlings are six years before they produce a bloom; the so-called self or breeder, which may at any time then develop into a perfect flamed or feathered flower, and once rectified, it never reverts or changes, but produces offshoots like the rectified parent. A number of questions were asked at the close, and a hearty vote of thanks accorded to the lecturer. This lecture brought the winter season to a close. *M. W.*

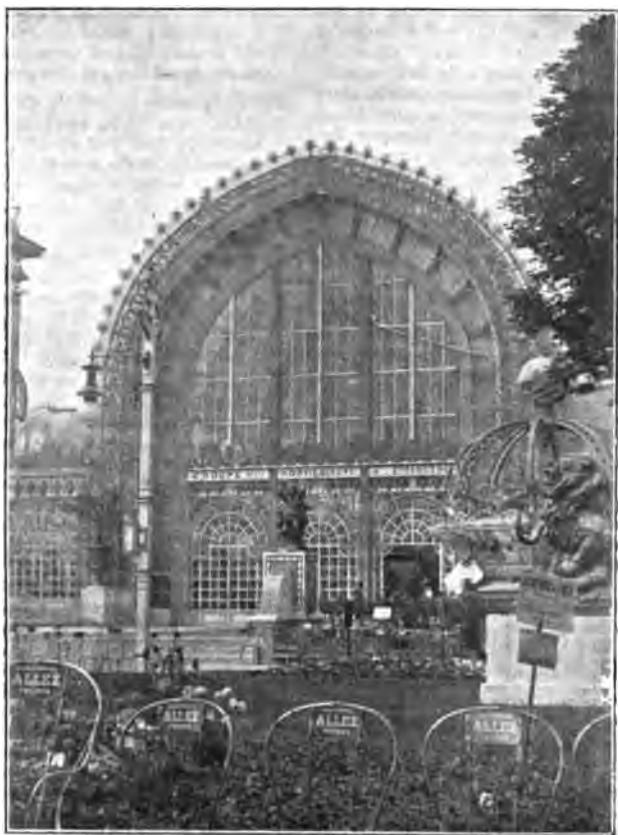


FIG. 115.—THE HORTICULTURAL DEPARTMENT, PARIS EXHIBITION.

The Exhibition-house reserved for the French Section was, as on former occasions, effectively arranged; most of the exhibitors were those who had shown analogous collections at former exhibitions. Suffice it then to mention briefly the tuberous Begonias, well represented by the firm of VALLERAND of Taverny, and including single and double varieties of erecta, cristata, and marmorata. Begonias were sent also by M. BILLARD, of Vésinet. There were, further, small Pelargoniums from M. POIRIER, of Versailles; and P. grandiflorum from M. BOUTREUX; a group of Heaths, very compact and healthy, from M. GENTILHOMME, of Vincennes; large single-flowered Begonias from M. FLET; some fine Cannas from M. DUPANLOUP; and from the firm BILLIARD ET BARRE, of Fontenay-aux-Roses, who also showed seedling Colons. Various coloured Pyrethrums came from M. LAPIERRE; some fine flowering shrubs from M. DESIRÉ BRUNEAU; a collection of Caladiums from M. ROBERT LEBAUDY, an amateur of Bougival (gr., M. Page), these formed a fine framework for his group of Orchids.

Among the Orchids the exhibitors were more numerous than before. I would mention the fine groups from MM. DALLEMAGNE ET CIE., of Rambouillet; LESURER, of St. Cloud; BERANEK & DALLÉ, of Paris; DUVAL ET FILS, of Versailles; MARON, of Brunoy; CAPPE ET FILS, of Le Vésinet; and BERT, of Bois, Colombes. Two less important groups were staged by M. FRET, of Argenteuil, and M.

the centre of which the tall racemes of Eremurus robustus had a good effect. In his arrangement were Salvia, Bougainvillea glabra Sanderiana, Coleus, Astille, and out-door flowering plants.

The firm of VILMORIN-ANDRIEU ET CIE obtained, as usual, great success with various lots of annuals and biennials; a pretty group of alpines in the open air, a splendid mass of Calceolarias arranged at the entrance of the hall, and an interesting collection of seedling vegetables and flowers, pricked out in pans, and having but four or five leaves.

M. HALOPE, of Charbourg, showed a new Rhododendron, R. Griffithi x R. arboreum, with large flowers, white, delicately flushed with rose when young, and lightly dotted with reddish-brown.

M. DU TREMBLAY DU MAY, an amateur of Paris, sent some Anthurium Scherzerianum with large spathes, and a few Orchids.

In the house devoted to foreign exhibits there was a splendid lot of decorative plants, Palms, Ferns, &c., staged by M. VAN DEN DALLE, head gardener at Monte Carlo; and another important collection from the houses at Schönbrunn, sent by H.I.M. the EMPEROR OF AUSTRIA. In this set were several Orchids, notably a grand truss of Cœlogyne Massangeana with five floral racemes, and there were also Palms, Anthuriums, Bromeliads, Philodendrons, and other rarely-used plants. Two adjacent houses, not yet finished, were

MARKETS.

COVENT GARDEN, MAY 31.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but often several times in one day. *Ed.*]

OUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arums	2 6-3 6	Maidenhair Fern	
Asparagus "fern"		per doz. bunches	4 0-5 0
bunch	2 0-2 6	Marguerites, p. doz.	
Carnations, per doz.		bunches	3 0-4 0
blooms	1 6-2 6	Mitroses, 12 bun.	4 0-6 0
Cattleyas, per dozen	9 0-12 0	Narciss. Dbls. White,	
Eucharis, per dozen	3 0-5 0	doz. bun.	2 6-4 0
Gardenias, per doz.	1 0-2 0	Narcissus, Peasants'	
Gladiolus, scarlet,		Eye, doz. bun.	1 6-2 0
per dozen	5 0-6 0	Odonotoxasuma, doz.	4 0-5 0
— white, per doz.	1 6-2 6	Roses, Red, per doz.	3 0-5 0
Iris		— Tea, white, doz.	2 0-4 0
bunches	4 0-6 0	— Saffron, per doz.	2 0-3 0
Lilac, white, bunch	3 6-4 0	— Marschal Niel,	
— mauve, bunch	3 0	per doz.	6 0-10 0
Lilium Harrisii, per		— Catherine Mer-	
dozen blooms	3 0-5 0	met, per dozen	4 0-6 0
Lilium longiflorum,		Smilax, per bunch	4 0-5 0
per dozen	3 0-5 0	Tuberose, per doz.	
Lily of Valley, per		blooms	0 0-1 0
doz. bunches	5 0-15 0	Tulips, per bunch	0 8-1 6

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Acacias, per dozen	12 0-18 0
Adiantums, p. doz.	5 0-7 0
Arbor-vitæ, var. doz.	6 0-36 0
Aspidistras, p. doz.	18 0-36 0
— specimen, each	5 0-10 6
Crotons, per doz.	18 0-30 0
Cyclamen, per doz.	8 0-10 0
Dracenas, var., doz.	12 0-30 0
— viridis, per doz.	9 0-18 0
Dutch Hyacinths,	
per doz.	8 0-15 0
Ericas, var., per doz.	12 0-36 0
Euonymus, various,	
per dozen	6 0-18 0
Evergreens, var.,	
per dozen	4 0-18 0
Ferns, in variety,	
per dozen	4 0-18 0

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, Tasmanian	
(various sorts)	
case	8 0-11 0
Apples, Victorian,	
cases	8 0-12 0
Apricots, box 24	1 0-1 6
Bananas, bunch	6 0-9 0
Cherries, per box	1 6-2 6
— in sieve	7 0-9 0
— strikes	4 0
Figs (New), p. doz.	2 0-4 0
Gooseberries, pecks	2 0
— in sieve	3 0-4 0
Grapes, Hamburgh,	
new, per lb.	1 6-3 0
— Gros. Maroc, lb.	3 6-4 0
— Muscats, new,	
per lb.	3 0-5 0
Grapes, Belgian, p. lb.	1 3-2 0
Melons, each	1 0-1 9
Nectarines, per doz.	
Class A.	15 0-21 0
Class B.	6 0-9 0
Oranges, per case	12 0-24 0
— Blood	12 0
— Denia (various)	9 0-25 0
— Valencia	20 0-24 0
Peaches, per dozen	
Class A.	18 0-24 0
Class B.	6 0-9 0
Pines, each	1 9-3 0
Strawberries, per lb.	
Class A.	2 6-3 0
Class B.	0 9-1 3
— French B.R.W.	
6 lb. gross	2 0-3 0

(For remainder of Markets and Weather, see p. viii.)

ANSWERS TO CORRESPONDENTS.

APPLE-TREES DYING: *R. H.* The plants sent appear to have been planted in very unsuitable soil, or in one that has received a dressing of some substance (chemical probably) injurious to plant life; moreover the roots are infested with American-blight. The fungus observed on the roots and root-stock has apparently followed, not caused, the death of the trees; as also the brown, dried patches noticeable on the stems.

BLACK CURRANT MITE: *Bristolian.* The questions you put would be better addressed to a solicitor. 1 and 2 are legal questions; 3, if the buds had been out open last autumn, it is possible the mites could have been detected with a microscope, but they are very difficult to find; 4, yes, certainly.

BOOKS: *D. Q.* 433. Boulger's *Familiar Trees*. The new edition of Ann Pratt's *Flowering Trees* (Warne & Co.). The Lindley Library is open to inspection on application.—*G. Taylor.* *Farming for Pleasure and Profit: Market-garden Husbandry*, by W. H. Ablett (Chapman & Hall, Ltd., 11, Henrietta Street, Covent Garden, W.C.); *My Gardener*, by H. W. Ward, you might find a useful and suggestive work. It is published by Eyre & Spottiswoode, East Harding Street, London, E.C. We know of no work treating of the cultivation of flowering plants for market. A good cultural manual, *Choice Stove and Greenhouse Flowering Plants*, by the late B. S. Williams, and sold at the Victoria and Paradise Nurseries, Upper Holloway, would be found of use.—*Fruit Farming for Profit*, by G. Bunyard, and sold by F. Bunyard, Week Street, Maidstone, is indispensable. We are unable to give the prices of the various books.—*F. Y.* There is no work that we are acquainted with published weekly or monthly on estate work or on forestry.

CARNATIONS DYING-OFF: *G. Henley.* The roots are infested with eel-worms, introduced with the pasture-loam. There is no cure, and you must throw the plants away; and for the future, use a loam that has been at the least two years in stack, and kept free from all herbage. Such a soil seldom contains eel-worms, wire-worms, or weevil-grubs.

CARPET-BED: *E. J. G.* We would advise you to send to Messrs. Cannell & Sons, Swanley, Kent, for their little book of designs, and list of plants.

COLOURED PLATES: *San Francisco.* Enquire of Messrs. B. S. Williams & Son, Victoria Nurseries, Upper Holloway, London.

CUCUMBER-ROOTS: *W. Waters.* Eel-worms, no cure. Clear out soil and plants, and make a fresh start with soil and plants from a new source. Read advice to *G. Henley*.

GARDEN MOWING-MACHINES DRIVEN BY MECHANICAL POWER: *R.* There are several of these machines on the market. Two, one driven by steam and one by electricity, were figured in these pages on March 23, 1896. We do not know the names of the dealers, but the inventor in both cases is W. J. Stephenson-Peach, M.I.M.E., of Askew Hill, Burton-on-Trent, and Professor of Engineering at Repton School and Cheltenham College.

IXIA: Constant Reader. *IXIA* is the name of a genus of Iridaceous plants, and includes a number of species. The plants have bulbs with deciduous foliage, and produce variously coloured flowers upon long slender spikes. The bulbs may be obtained in autumn from any of the nurserymen. *IXIAs* are not generally hardy, but in the southern and western counties they are known to grow and flower freely in specially-prepared soil in warm situations. We should not plant them in the mixed flower border as you suggest, but if it is wished to cultivate them out of doors it would be better to select a little border on the southern side of a plant-stove or forcing-house, where the whole power of the sun's rays is felt, and where the soil is kept partially warm, owing to the heated structure. Take out the soil a couple of spits deep, put in plenty of drainage material, and cover it with sods, grassy side downwards. Then fill in with a light, very sandy, moderately rich soil, in which the bulbs may be planted in autumn. After flowering in early summer the bulbs may be lifted and thoroughly ripened by drying off, or, if the bulbs be not lifted, the ground should be kept as dry as possible for a month after the leaves have faded. Their cultivation in pots is much more simple, and generally more satisfactory also. They merely require protection from frost, and if started early, they will give a quantity of pretty flowers in spring.

LILIES AFTER FLOWERING: *E. W.* Apply water in moderate quantities till the leaves and stems turn yellow, then withhold it and turn the pots on their sides under a west or east wall till September or October, when repotting may be performed. It is sometimes an advantage to repot a potful of bulbs entire, and it is only when the bulbs are very much packed in the pots that shaking-out is required. This for the private gardeners; market men pot singly because their saleable stock is thereby increased. To lay a potful of Lily bulbs, *Richardias*, &c., on its side on the earth when dried off, is a far superior practice than to store the pots of bulbs, or the bulbs only, in a dry store. Lilies grown in pots and treated properly do not deteriorate.

LILY DISEASE: *E. F. H.* A bad case; destroy the bulbs by fire, and do not plant again in the same locality.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*Ignoramus.* 1, *Thuia gigantea*; 2, perhaps *Abies balsamea*; 3, *Pinus Laricio*; 4, *P. Strobus*; 5, *Thuia orientalis*.—*J. A.* *Eulophia Phillipsii*, Rolfe.—*C. M.* *Prunus Padus*.—*J. F.* *Coronilla Emerus*.—*A. B.* 1, *Ipomoea sinuata*, probably; 2, *Dendrobium Parishii*; 3, *Abutilon megapotamicum*; 4, *Clerodendron Thomsonii*; 5, *Allamanda cathartica*; 6, *Sedum carneum variegatum*; 7, *Sedum Sieboldii variegatum*.—*E. D.* *Lælia purpurata*, fine in colour though otherwise not remarkable.—*G. H. S.* 1, *Æsculus flava*; 2, *Prunus Padus*.—*Vox.* *Lobelia gracilis*, a pretty plant for pot.—*In a small tin spice-box.* 1, *Lithospermum purpureo-ceruleum*; 2, *Anchusa italica*.—*F. J. C.* *Saxifraga hypnoides*.—*Leedsii.* Will you please send more specimens, and as good ones as possible?

NARCISSUS DISEASED: *F. L. S.* Another case of the Sclerotium disease, referred to on April 21 and May 19. In the present instance the sclerotia or resting stage of the fungus is present in the dead leaves. In soils liable to this disease it would appear that the only course open is to lift the bulbs after each flowering season, and to re-plant later. In the *Gardeners' Chronicle*, July 16, 1898, p. 42, a method of treating *Liliums* for a similar disease is described. The bulbs were lifted, and before replanting in the autumn were thoroughly shaken with flowers of sulphur in a bag. At the same time the outer dry scales of

Narcissus, which contain these resting sclerotia, should be removed and destroyed.

PEACH-LEAVES: *G. F.* The leaves are affected with a fungus called the Shot Hole fungus. Burn all the leaves, and cut away the young wood. Next year spray the trees just as the leaves are coming out, with weak Bordeaux Mixture.

PLUM SHOOTS: *H. A.* Your Plum shoots have overgrown themselves, but why we cannot tell. Probably too luxuriant food, or too much water.

RECENTLY PLANTED CONIFERS IN CLAYEY SOIL: *J. C.* An occasional application of water at the root may be made in dry weather, but it should follow an examination of the soil, as although appearing dry at the top, it may not be in need of water a few inches below. Syringing with clear water in the evening, and even at any hour of the day in hot weather, will do much in re-establishing the plants, and to a certain extent render root-watering unnecessary. Be careful not to apply rich mulches of stable-manure.

RECOVERY OF EXPENSES TO INSPECT GARDEN: *Nursery Manager.* We should advise you to consult a solicitor.

SEED: de Laet Contich. *Pentaclethra macrophylla*, a native of tropical Africa, but in all probability the seeds will not germinate, as they appear to be dead. They require great heat.

SUPERPHOSPHATE OF LIME AS A DRESSING FOR NARCISSUS, IRIS, &c.: *E. W.* A slight dressing, say, 4 oz. per square yard, may be dug in before the bulbs are planted (not put round the bulbs); a few surface dressings may be applied after growth has begun, the land being afterwards stirred at short intervals of time.

TOMATO-PLANTS DISEASED: *Tomato.* The first consignment of material showed abundant evidence of the Tomato-leaf mould, or rust (*Cladosporium fulvum*); but as a fresh lot has just come to hand, a further examination will be made. Spraying seems to be the right thing to check the disease, but we do not know the action of the fungicide you are using. The fungicide for Tomato diseases must be one which adheres well to the foliage. Potassium sulphide does this fairly well; but better results have been obtained from Bordeaux Mixture, because the lime in it renders it more adhesive. The strength used is 4 lb. copper-sulphate and 4 lb. quicklime in each 50 gallons of water. The first spraying should be made about three weeks after the plants are transplanted; other three or four sprayings follow at intervals of two or three weeks.—*M. J.* The fruits are affected by *Cladosporium Lycopersici*, the cause of the so-called "spot." Use sulphide of potassium, ½ oz. to 1 gallo of water, as a preventative, and burn every affected fruit.—*F. B.* The plant sent is attacked by the so-called "sleepy disease," caused by a minute fungus—*Fusarium Lycopersici*; for a full description of which we would refer you to *Gardeners' Chronicle*, 1895, vol. xvii., pp. 707, 709. Fungicides are of no avail, the roots being first attacked, and the parasite is internal. Mix a considerable quantity of fresh lime with the soil, especially if Tomatoes are grown successively in the same beds. If an attack is severe, the soil should be thrown out, and the walls lime-washed. The old soil should be sterilised with lime, or baked.

YELLOWING OF THE LEAVES OF A VINE: *G. W. G.* The result of sunburn and deficient ventilation. The early summer months give the forcing-gardener much to do, and he must be ever alert by day to reduce or increase the ventilation of his forcing-houses without the least delay.

WIREWORMS: *H. S.* As traps for immediate use, put sliced Carrots, Turnips, or Potatoes about among the rows of vegetables suffering from these pests, burying the slices or half roots just beneath the soil, examining them at intervals of a few days, and clearing the creatures off into a vessel. Wireworms have much partiality for the roots of Lettuces, and it is a great protection to sow Lettuce-seed rather thickly between the lines of such vegetables, as Parsley, Carrots, &c.

SPECIMENS, PHOTOGRAPHS, &c., RECEIVED WITH THANKS.—G. B. M.—G. C. C.—Dr. Boravia.—H. Low & Co.

COMMUNICATIONS RECEIVED.—Hills Bros., San Francisco—W. G. S., Leeds—G. C. C. D. R. W., many thanks—W. T. T. D.—Carl Hansen, Copenhagen.—W. F.—Captain Walker—A. O'N.—R. D.—E. H. J.—Wild Rose—W. H. A.—J. S.—J. W.—J. B.—W. W.—E. W.—N.—J. A.



THE Gardeners' Chronicle

No. 702.—SATURDAY, JUNE 9, 1900.

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DELAGOA BAY.

OUR correspondent, Dr. Hans Schinz, of Zurich, has published in the *Bulletin de l'Herbier Boissier* some notes founded on the observations and collections of a missionary (Rev. Henri Junod), from which we condense the following particulars. The observations of M. Junod were taken in the neighbourhood of Rikatla—that is, amongst the hills of the Lorenzo Marques district.

CLIMATE.

The year may be distinctly divided into two portions—the wet season, and the dry season. To the natives of Delagoa the year begins at a time equivalent to the European July, as about that season a tree they call *Nkouhlo* comes into leaf, and they begin field-work again. The country is still much parched; the *Nkanye*, the most valuable trees (*Sclerocarya caffra*) are leafless; on every side the fields have been burnt to encourage the growth of fresh grass for cattle, or to clear off the underwood. At this season, *Heliosyrum parviflorum* puts forth its very small flowers in corymbs, covering large areas, and sometimes growing quite into little bushes. The sky is clear. North winds are prevalent; the dews furnish a little moisture.

Throughout August the dryness continues, but certain trees spring into leaf as if by enchantment. Amongst others, *Strychnos spinosa* develops suddenly after an unfavourable spring, and in spite of the scorching sun. The buds have no hard sheath

or bud-scales to break through, as in this country it never freezes, and they need no such protection. Another tree that now comes into green and delicate leaf is *Connarus africanus*, which forms great forests in the estuary of Nkomati and other parts of the country.

According to M. Nevill, the Durban astronomer, there is usually in the last week of August a tempest of rain, ending the dry, and inaugurating the wet season. But such storms occur at other times during winter; and we do not at Lorenzo Marques, as a rule, expect the rainy season to set in so soon.

September, in fact, seems often to be part of the dry season—at least at Delagoa. The heat is still quite dry, especially when the north winds blow, as mentioned above. This is the transitional month. If rain has fallen early, the vegetation flourishes magnificently; the natives hasten to sow their Maize. In the woods, where the tree-trunks are blackened by the fires until they look like charcoal, in a few days a tender turf appears, bright, with large, yellow Hibiscus, violet Polygala, a large Lily (*Crinum Forbesianum*), with rosy flowers, more than ten of them on one stem. This is the season when many of the insects appear. If no rain falls, the undergrowth is retarded, but the trees are less easily affected. *Connarus* is covered with beautiful rosy blooms, and various sorts of *Acacia* now flower, among them *Albizia fastigiata*, which is abundant in forests and on cultivated land. *Sclerocarya caffra*, "*Nkanye*," now puts forth new leaves at the end of the branches, and the flowers open; the males are borne on long spikes, the female flowers isolated and nearly sessile—they are dioecious. The "*Nkouhlo*" is also in bloom.

In October, the glory of the vegetation is at its highest point. The rains have now well begun, and all the trees are in flower. Papilionaceous plants of every sort abound, some small and concealed, others creeping over other plants. The flowers fall from the trees, insects appear abundantly, and there are great caterpillars, considered eatable by the natives, and that strip the trees of leaves. So abundant is the sap that the branches put out fresh foliage, and this persists until June or July. Mosquitos appear, there is more moisture, the nebulosity is 45 per cent.

In November, the fruits of the "*Nkouhlo*" are ready. Curious Almonds, with a black, greasy, bitter kernel, covered with a white pulp with a yellow skin, and delicious in flavour; the natives make much use of it. Many fresh kinds of plants appear; *Striga*, amongst others, *S. lutea* (*Scrophulariaceae*), parasitic on the roots of Maize or other plants. I was fortunate in finding a fine species, with rosy flowers, in Rikatla, in a low and inundated spot. In this month, the thermometer most frequently registers more than 40° C. (104° F.), and there are fewer clouds and rain than in January, which is the hottest month. The nights become warmer, the evenings often stormy, southerly winds prevail.

In December another fruit ripens similar to a large Apricot, which the natives call *Bohimbi*, and of which they make excellent wine. Maize begins to ripen. Among the underwood grows a splendid orange *Gladiolus*; and in the fields a Lily, with gimlet-like tips to the leaves, and with recurved petals brick-red, streaked with yellow. This is the *Gloriosa virecens*. In December and January the worst storms appear, and it has been known to thunder for two hours without intermission.

In January the Sorgho, Millet, and Maize (at least, the first crop of the former) are ripe. This and February are the most rainy months, the sand being often so saturated that streams are formed along the roads. The nights are distressing, the mean minimum reading being C. 21.68° (70° +, F.).

But February is the worst month. The air is stifling, especially at night. The natives rejoice in the *Sclerocarya* fruits, now ripe and resembling large yellowish Plums, tasting strongly of turpentine, and of which they make and consume large quantities of an alcoholic drink resembling

lemonade. Certain grasses are by now over 6 feet high.

March is usually welcome, as the nights are then cooler. In the fields the natives gather in their Beans and Pistachios. The rain decreases.

In April the change is more marked. The nebulosity falls from 40 to 25 per cent.; the rainfall from 74 to 2 mm. The natives raise drying places of branches at 5 feet from the ground, and here expose the black Peas and Pistachios that they have collected. Growth stops, though some plants continue to bloom, among them many small Cucurbitaceous plants that abound in the fields, and wind round the dry stems of Maize.

May and June complete the cycle. Many trees now lose their leaves, but most of them retain them throughout the year. This is the winter. The rainfall is but about 28 mm. in May, and 5 mm. in June; vegetation is scorched off the slopes, and despite winter-dews there is soon seen over all that grey look which later, when the annual burning is over, may even be called black.

Such is the procession of the seasons in Delagoa.

THE FLORA.

Delagoa constitutes the southern boundary of the Portuguese colony of Mozambique, and therein (Rev. H. Junod) spent seven years (1889—1896), at the station at Rikatla, about 12 miles from Lorenzo Marques.

I collected specimens of about 400 plants, and do not think that I neglected many Phanerogams or Cryptogams to be found in the environs of Rikatla; on the contrary, that region was the one most accessible to me, and to it my remarks apply.

Botanically speaking, this plain to the north and east of Lorenzo Marques includes several distinct tracts. There are the dry sandy hills, sloping south and north, like parallel ripple-marks on an old sea bottom, and scarcely exceeding 120 to 150 feet in height. Then there are corresponding depressions or gullies between these hills. At the bottom of these there is usually some stagnant salt water, full of *Mariscus*, *Cyperus*, *Carex*, *Papyrus*, and other monocotyledons.

Next, to consider these tracts more in detail. The hills are covered with vegetation that is rather poor, considering that the climate is tropical, yet richer than might have been expected from the poorness of the red or white sandy soil.

The natives have cleared most of the country, but spared fruit-bearing trees, so that these may be found even in fields of Maize and other crops. There is no velvety turf; the grass is coarse and sparse. Among the trees that are most valued by the natives is the *Sclerocarya caffra*, *Nkanye*, found everywhere here, and the fruits of which yield fruit and drink. The leaves of these trees fall in the dry season, and sometimes in spring, owing to the ravages of a caterpillar. From these they quickly recover and put out new leaves.

Strychnos spinosa bears great green fruits like balls. These in times of famine are used as food. Other native trees there are not yet determined, and with local names of impossible pronunciation.

Vangueria infausta has a welcome fruit, something like a Medlar; *Albizia fastigiata* is pretty in spring, with masses of white flowers; *Pterocarpus erinaceus* we call the Blood-tree, as it has a red sap that stains the hands. Then there are *Eugenia cordata*, and one or two species of Palms, of the leaves of some of which the natives make baskets.

There are also many shrubs, including *Tecoma capensis*, with trusses of brick-red bloom; *Cassia Petersiana*, and a smaller species, *C. mimosoides*, about 8 inches high. Of this there are two forms, one found on the hills, and another with longer leaves and pods, in the valleys. *Ochna atropurpurea*, usually about the same height, rises to more than 3 feet in the woods. I would here mention *Mundula tuberosa*, a papilionaceous shrub, with silvery leaves; and *Grewia occidentalis*, with violet starry flowers; and a caoutchouc tree, *Landolphia spec.*

Round the conical native huts that form the village a screen of trees has been allowed to grow up. On the Mimosas grow Lianas; one a yellow Groundsel, with broad leaves, *Senecio deltoideus*; another, *Vernonia angulifera*, has violet flowers.

Of herbaceous plants on the sandy slopes, I counted in June (the beginning of winter) thirty species, all in bloom on the same day. In July, at Rikatla, I admired the flowers of *Hibiscus surrattensis*, a yellow Mallow, with deep purple base to the corolla; and *Sida cordifolia* and *S. rhombifolia*, *Abutilon indicum*, and *A. sonnerati*. Near these grew a number of small Cucurbitaceous plants, whose leaves and small pointed leaves serve the natives as vegetables; they were *Momordica foetida* and *Coccinia jatrophaefolia*. In the fallow lands grew also two species of *Melhania*, a sort of large *Potentilla*, one citron-yellow, the other a fine golden colour. I also gathered a curious labiate, bearing violet leaves at the tips of the stems, which from a distance look like flowers. M. J. Briquet considers this belongs to a new genus, in which the two anterior stamens are close to the anthers; this is *Henrizygia junodia*. Later on, when the first rains have fallen, the tracts annually cleared by burning vegetate again. Then appear numerous *Polygala*, *P. capillaris*, *P. Quartianiana*, *P. serpentina*, *P. Rehmani*; *Cleome hirta*, *C. monophylla* var. *cordata*, *C. chilocalyx*; the pretty yellow *Commelina africana*, and the delicate blue *Forakalei*. Now too the Lilies open; among them the splendid *Crinum Forbesianum*, with large, rosy flowers, eight or ten on a stem. This grows in wonderful masses brilliant against its blackened, burnt surroundings. Another *Crinum* with narrow leaves, and a white or very faint pink flower, is found near Mabota, between Lorenzo Marques and Rikatla. In December many species of *Indigofera* open: *polycarpa*, *tristis*, and *podophylla*. There are two pretty yellow climbing *Rhynchosia*, *R. gibba* and *R. minima*. Then there is the *Abrus precatorius* with its pretty scarlet, black-tipped seeds, and *A. pulchellus*. In January or February, *Gloriosa virescens* blooms in the copses and fields; it has reflexed petals, brick-red marked with yellow, and very effective. In the dry and cool winter, *Helichrysum parviflorum* appears. The yellow flower is insignificant singly, but when, as here, it grows in masses, it colours the whole country for several weeks.

Between the sand-hills are the gullies, sometimes damp and swampy, sometimes dry. In these marshes grows *Nymphaea stellata*, with fine violet flowers; and *Limnanthemum Thunbergianum*, which is not very common. I also found *Lagarsiphon muscoides*, with small white floating flowers like *Ranunculus fluvialis*. There were numerous *Potamogeton*, *Mariscus Drgeanus*, *M. radiatus*, *M. capensis*, *Carex pseudocyperus*, and *Juncus*. These ponds are sometimes bordered with marshy black ground, where a distinctive flora is developed not tropical. The great violet *Hibiscus diversifolius*, more than six feet high, is found here; and another less remarkable species, *H. Trionum* occurs, with others, in the gullies of Angoana. At the foot of these tall plants is a *Hydrocotyle*, much resembling our European species, *H. bonariensis*. Many Papilionaceous plants and Composites are peculiar to this district, among them *Polygonum tomentosum*, and *P. lanigerum*. Towards the sandy slopes is a drier region with many fine Orchids, one resembling *O. militaris*. There are *Striga*, with rather large purplish flowers, a new species, *S. Junodi* (other species, the orange *S. lutea* and the violet *S. gesneroides*, grow on the hills), *Vahlia capensis*, and other plants. At the very foot of the hills, in the white sand bordering the gully among the poor herbage, is *Helichrysum spec.*, stunted, and like a little *Saxifrage*, and its relation *H. elegantissimum*, a white and yellow immortelle, of which there are many species in South Africa. There are also here the orange *Tephrosia discolor* and *Eriosema cajanoides*, and *E. parviflorum*. Beyond these the limit of the hill flora is reached.

In addition to these two distinct botanical regions, there are two others worth mention in the neighbourhood of Rikatla. The forest of Morakouene is a large district, covering the estuary of the river Nkomati. Where the trees grow thickly, almost impenetrably, there are but few small plants. But in other places are many shrubs that I have already mentioned, besides other and apparently local forms. The predominating tree is *Connarus africanus*, or *Azelia cuanensis*, called the African Mahogany, with hard wood, a rosy flower, and fruits like two brown valves, which divide as they ripen, and display handsome black seeds touched with orange.

There are, in the forest, giant Euphorbia-like candelabra, great yellow Cacti, and other fleshy plants difficult to collect and to dry. On the oldest trees I found the only *Dendrophilous Orchid* of this country—*Cymbidium Sandersoni*, I believe it to be. Dr. Liengme told me he found another magnificent white species near Lake Pati, the other side of the river. I would also mention *Empogona Junodi*, a small shrub, with flowers like rosy-down, and *Mimusops caffra*, of which the natives eat the fruits.



FIG. 116.—COLOUR VARIATION IN AURICULA.

The Palm woods found in certain of the shallow valleys also contain species of plants peculiar to them. These woods are at the foot of the hill running from Pointe Vermeille to Morakouene on the eastern side. The Palm trunks rise from 24 to 120 feet high, and at the summit is a grand head of leaves 45 feet long. In the centre, with female specimens, is a brown cone, or fruit. The Palm, I am told, is *Raphia ruffia*. In the shade in the marshy, sometimes quaggy or muddy soil, grows a regular hot-house collection of Reeds, Ferns, and other flowerless plants. At the edges, in more solid ground, are *Ranunculus pinnatus*, the only species I have seen in this country; *Rubus rigidus*, *Sebania aculeata*, and other plants.

On leaving the hills by the sea-shore, the first new region entered is that of the Porphyry hills of Lelombo, an absolutely different country, as rocky as the plain is sandy. Here are composites resembling *Asters*, *Othonna acutiloba*, and *Epaltes gariepina*, numerous species of *Mimosa*, and other plants unknown nearer the town.

On passing the bay, and going along the south side of the Tenebe sea, yet another different region is entered of clay, where grow great Aloes, spiny Acacias; a Composite, *Gerbera piloselloides*, and other new forms.

The author of this interesting paper particularly desires that it may not be looked upon as a comprehensive scientific treatise, but merely as a record of his own observations in a field new and well worth studying.

FLORISTS' FLOWERS.

SPORTIVENESS IN THE AURICULA.

HITHERTO, though seedlings from the finest fertilised flowers have shown a considerable amount of variations, sportiveness has not been of very frequent occurrence, though it may be some have not been made public. Mr. Ben Simonite, of Sheffield, brought to the Auricula Show at Birmingham an illustration of a singular sport in the form of a truss of bloom of a very fine crimson self Auricula, raised by the Rev. F. D. Horner, with several of the pipe very handsomely striped with crimson and gold, and one of the pips a fine golden self, without any trace of crimson. This sportiveness was observed on a truss last year; the truss of bloom recently brought to Birmingham was borne by an offset from the plant which displayed the sport last year. There is in cultivation some poor forms of striped Auricula, but I have never before seen anything approaching the fine character of the sport Ben Simonite has. Is it the forerunner of a section of striped Auriculas? R. Dean.

ORCHID NOTES AND GLEANINGS.

ERRATIC ORCHIDS.

MESSRS. HUGH LOW & CO. send us a specimen of *Odontoglossum crispum* in which two flowers are united (synanthly). A second specimen is a flower of *Cattleya Skinneri*, in which there are two sepals spreading laterally, and at right angles with these two lip-like petals, the one wrapping round the other. The column and ovary are wanting; though thus defective the flower is very pretty.

ODONTOGLOSSUM CRISPUM OAKWOODIENSE.

A fine inflorescence of this unique variety sent by Norman C. Cookson, Esq., Oakwood, Wylam, Northumberland (gr., Mr. Wm. Murray), while presenting one of the handsomest of blotched *Odontoglossums*, also gives another example of variation arising either from natural deviation from the type, or from cross-fertilisation in the remote past—a theory which would go far to explain the great variety to be found in what is generally regarded as true *Odontoglossum crispum*.

In this handsome form there is a decided suspicion of *O. x Wilckeanum*, some of the flowers exhibiting distinct though small and spineless ridges at the base of the lip on each side of the crest, which also in some of the flowers is more irregular than in typical *O. crispum*. In the main, however, it is as good an *O. crispum* as many of the other blotched varieties already recorded under that name; and, on the other hand, it is very distinct from any form of *O. x Wilckeanum*.

The flowers, which are just under 4 inches across at the greatest width, have broad and flatly-displayed segments, after the manner of the best type of *O. crispum*. The colour is primrose-yellow, the sepals being heavily tinged with rose-purple at the backs, and more lightly on the front surface, which has on each one large rose-purple blotch about half an inch in length, and two or three smaller. The fringed petals bear from one to three small purplish blotches, and the labellum one large oblong blotch of the same colour in front of the yellow crest. The base of the lip and upper side of the column also has purplish markings. James O'Brien.

FUMIGATION OF CURRANT BUD-MITE WITH HYDROCYANIC ACID.

IF wireworm and the Turnip flea-beetle be the most troublesome and evasive of the insect pests which afflict the farmer, the gardener has two additional enemies of even greater powers of destruction and self-protection—the Black Currant bud-mite and the mealy-bug. In the course of my work as a lecturer on garden science, I have been constantly faced with the problem of the eradica-

tion and cure of the "big-bud" disease of the Black Currant, as well as of mealy-bug in glass-houses.

The washes found effectual for aphides and biting insects proving of no avail, other means of attack became necessary, and the records of successful treatment of the San José scale, which came to hand from America, suggested the trial of fumigation with hydrocyanic acid gas. The results obtained have been so striking that I beg leave to lay them before the readers of the *Gardeners' Chronicle* as suggestive of a simple and successful treatment of these two elusive pests.

A preliminary note of the results obtained by Mr. F. V. Theobald and the writer have already appeared in the college Journal,* but as its readers are more agricultural than horticultural in interest, the results of our experiments may not reach those most concerned in the manner.

lent that we have failed to procure stock of this variety which is not infected with the mite. It is more than doubtful whether any nurseryman or grower in this country could supply a thousand plants of "Baldwin's" guaranteed true and actually free from infection.

The commercial aspect of the matter is very serious. The Black Currant, on suitable soil, is the best all-round paying small fruit that can be grown in our south-eastern fruit-growing districts. It quickly grows into money, and the demand appears steady and reliable. During the last six years hundreds of acres that were paying £30 to £40 a year have been "grubbed" in Kent alone, owing to the spread of the disease. One Kentish grower who had averaged £1,400 a year clear profit on Black Currants, recently told us that his returns have so shrunk that he doubts whether he will ensure a gross return of £50 during the present

Baldwins planted near the college Hop-garden at Wye were sprayed frequently at short intervals from early June onwards, without any apparent effect on the mite infestation. The observations of entomologists suggest that the mites migrate from the buds in which they have developed during the first fortnight of June; but apparently the migration is so irregular, that washing is not a practical remedy, even if frequently carried out at this critical season.

The majority of growers who have tried cutting down to the ground, and burning all the infected shoots and branches, have found that the disease was soon as bad as ever. In many cases the new shoots sent up have shown signs of serious infestation the following autumn. One grower in East Kent claims a cure as the result of this practice, but his experience is not that of most who have put it to the test.



FIG. 117.—GROUP OF SUCCULENTS EXHIBITED AT THE TEMPLE SHOW BY MESSRS. CANNELL AND SONS.

(See Report of Temple Show in our issue for May 26, 1900, p. 3 of Supplement.)

EXPERIMENTS ON THE BLACK CURRANT BUD-MITE (PHYTOPTUS RIBIS).

This disease is too well known to need description, the entomological details as to the mite and its method of invading the Black Currant having been set forth in the writings of Miss Ormerod, Mr. Theobald, and others. [It was first described and figured in our columns by Westwood on August 7, 1869, p. 841.] The private gardener only occasionally meets with the pest, although it is becoming far more prevalent in small gardens than of yore. It is mainly confined to large cultivations for market of the finest and most productive varieties, and is most marked in the case of that magnificent variety, the Baldwin. Private gardens rarely contain the prolific varieties that are necessary to the market grower, and the old-fashioned varieties are not nearly so susceptible to the attacks of the *Phytoptus*.

As regards the Baldwin, the disease is so preva-

season. To add a further sting to this misfortune, the wily Dutchman, whose stock is at present free from disease, is sending Black Currants over in large quantities to replace the serious reduction of the home-grown supply. That such consignments are subject to risks to all concerned was strikingly illustrated by the notorious "jam" cases of last season.

The enormous increase of *Phytoptus* disease is a very obvious outcome of the natural habits of the pest, and of the methods of propagation universally employed in the case of Black Currants.

Living, growing and increasing within the protecting folds of the unexpanded buds, ordinary methods of treatment with washes have been of little or no avail. The *Phytoptus* attacking the Pear is fairly easily exterminated by repeated washings with an ordinary fruit-tree wash, to which a little liver-of-sulphur has been added; but its congener of the Black Currant has proved incapable of cure by this means. A few infected

IS THE SOIL INFECTED?

These results suggest that the mites infect the soil, and pass therefrom to the buds on the shoots, resulting from hard cutting-back of the infested bushes. Mr. Theobald and the writer have experiments in progress to test this point. Healthy bushes have been potted up in soil taken from beneath a badly infested plantation of Baldwins. Treatment of soil with carbon bisulphide has also been carried out, and results should be available in the autumn. Primarily, the disease is chiefly spread through the striking of infected cuttings. It is most difficult to find shoots of infected stock free from mites. Buds that appear normal and healthy, prove on microscopic examination to contain a few individuals capable of indefinite increase. Growers naturally assume that shoots free from obvious "big-bud" are healthy, whereas they are not infrequently infected, and eventually develop the disease to a serious extent.

A market-grower who is propagating Baldwin's often finds that two-year-old plants grown from

* *Journal of the S.E. Agricultural College*, April, 1860, p. 67.

apparently normal shoots, are one and all liberally supplied with big-buds. It is a common trade trick to deliver orders of bushes for planting early in the autumn, in order to minimise the obvious presence of disease, since the "swelling" of the buds gradually takes place after the fall of the leaf. The effect of picking-off all swollen buds is of little if any practical use, as has been proved over and over again by those who have tried what appeared at first sight a simple means of eradication. What we wish to impress upon the grower is, that in most cases almost every bud on an infested bush contains at least a few mites capable of continuing the disease.

FUMIGATION EXPERIMENTS.

With the co-operation of Mr. Theobald as entomologist, a series of trial-tests of cyanide fumigation were carried out in November and December last. We soon found that hydrocyanic acid gas was a most effectual means of destroying the mites, provided the dose was not weaker than 1 ounce of cyanide per 150 cubic feet, and the duration of the exposure not less than forty minutes.

To stamp out the pest by a single fumigation, it is necessary to select a time when eggs are absent. Apparently the months of December and January represent the most favourable time for fumigation. At that time Mr. Theobald was unable to find any eggs in the buds, although adult mites were present in myriads. For the first time in the history of the disease a means of attacking the mite had been found. It now remained to so adapt the method to practical requirements as to enable a grower to rid his stock of the pest.

PRACTICAL METHODS.

Treatment of Cuttings and Young Bushes for Planting.—It would be obvious folly for a grower to plant up a fresh plantation with diseased stock, and fumigation has proved itself pre-eminently applicable to cuttings and nursery stock. On January 3, a grower at Egerton brought 2,000 diseased bushes (two-year old stuff), to the college for treatment.

The bushes were tied in bundles and placed in a heap on the ground. Four hurdles were arranged as a support, and the whole covered with a waterproof cloth. A small vessel was placed on the ground in the centre of the heap of bushes. Four ounces of water were added, followed by an equal volume of strong sulphuric acid (not *vice versa*); 1½ oz. of commercial 98 per cent. potassium cyanide was wrapped in thin blotting-paper, and dropped cautiously into the vessel of acid. The cover was quickly adjusted, and pressed down all round with pieces of timber. After one hour, the cloth was removed, taking care to avoid the fumes by standing to windward, and the operation was complete.

A fortnight later, a second batch belonging to a grower in the neighbourhood, was subjected to the same treatment. Repeated microscopic examinations by Messrs. Theobald, Percival, and the writer have failed to show a single living mite in the buds of the treated bushes—all were dead. With infinite pains, selected buds were subjected to a systematic microscopic analysis by Mr. Theobald, with the result that the effect of fumigation as a means of destroying *Phytoptus ribis*, has been completely established. Some forty of the very worst bushes, so bad that the owner would not plant them even after treatment, have been planted in my garden, where *Phytoptus* has never been known to exist. Most of the bushes had every bud swollen with myriads of mites; of these buds, the worst have gradually dried up, while some 75 per cent. have unfolded, and a fair proportion of them have flowered.

The effect of the mites is plainly visible in the seared and distorted foliage. A week ago (May 12) dead mites were still readily visible under the microscope on examination of the abortive buds, but not a trace of life was apparent. New shoots

are now pushing, and healthy extension growth combined with mite-free bushes have resulted from apparently hopeless material as the outcome of this simple process. The cost of chemicals is only about a penny per 1,000 bushes.

TREATMENT OF ESTABLISHED BUSHES.

Badly infested bushes of full size have been fumigated by us at varying degrees of strength and exposure. Forty minutes was requisite, a shorter exposure resulting in the subsequent recovery of a varying proportion of the mites. We found that ten minutes' exposure, although apparently long enough to destroy all living mites *pro temp.*, was quite inadequate, as 75 per cent. of them came to life again during the next twenty-four hours. We have arranged to extend our experiments in this direction so as to make the process applicable on the large scale, and have arranged the following procedure for trial during the next season. Six lengths light oiled calico, 8 feet wide, and 25 yards long, eighteen jam-pots, i.e., three per length of waterproof, and a supply of acid and cyanide, are designed to enable a man and a boy to fumigate two-thirds of an acre of established bushes per day. Each length of 25 yards would be placed in regular sequence over the bushes themselves without further support, so that when "No. 6" was started, "No. 1" strip would be ready for removal to another row. Each strip would have three pots, each holding 1 oz. of cyanide, 2 oz. acid, 2 oz. water. The chemicals would cost about 50s. per acre.

The results of our further experiments will be ready by the autumn, and the subject cannot yet be regarded as settled. It is indisputable, however, that the mites can be destroyed by cyanide fumigation, and that the process in the case of nursery stock is so simple and so cheap as to be of general utility. We would strongly urge all growers and nurserymen to give the new process a trial, and our staff at the S.E. Agricultural College will be happy to co-operate and confer with practical men, to whom the spread of *Phytoptus ribis* is a matter of moment. H. H. Cousins, M.A., South-Eastern Agricultural College, Wye, Kent.

PRIMROSES AND THEIR ALLIES.*

(Concluded from p. 342.)

Primula obconica is another free-flowering Primrose from China, also very popular for greenhouse decoration. Great improvements have been effected of late years on *P. obconica*, rivalling in this respect *P. sinensis*. These improved varieties have been obtained by selection. I remember seeing the first plant of *P. obconica* that reached this country; it was shown to me by the late Isaac Anderson Henry, in 1878, and the improvement already effected on the plant is marvellous. Let us hope that a similar improvement in the condition of the teeming population of that vast empire from which this Primrose was derived, may result from their contact with western civilisation also. *Primula obconica* is an evergreen species, like *P. sinensis*, easily grown in a greenhouse. It cannot be too well known that certain persons on handling *P. obconica* are liable to be affected with a kind of eczema, the face, hands or arms break out in disagreeable eruptions, which last for a considerable time. The nature of the occurrence is not very well understood. Some people may handle the plant with impunity, and not suffer in the slightest degree.

Primula Poissoni is of rather recent introduction, and a decided acquisition. It is a strong growing plant in the way of *P. japonica*. The flowers are bright rose, large, and arranged in whorls on a spike about a foot high. It is not so hardy as *P. japonica*.

Primula Forbesii is also of recent introduction

* Lecture delivered at a meeting of the Royal Caledonian Horticultural Society, on May 2, by Mr. R. Lindsay, Kilmessie Lodge, Murrayfield, Midlothian.

(*Gard. Chron.*, Dec. 2, 1893, fig. 106), a very pretty little species somewhat like *P. farinosa*, and interesting as being an annual species. There are several other species from different quarters whose names I can only mention, such as the well known Abyssinian Primrose, *Primula verticillata*, *Primula imperialis* from Java, a veritable giant among Primroses; *Primula Parryi* from the Rocky Mountains, and *Primula luteola* and *amœna* from the Caucasus.

All the species of *Primula* are perennials, with the exception of *P. Forbesii*, and the larger number are dimorphic, i.e., having the stamens and pistils produced at different lengths on different individual plants of the same species, termed by gardeners pin-eyed and thrum-eyed flowers. This peculiar arrangement of the reproductive organs that prevails in the genus, may account for the large number of natural hybrids that are found in a wild state; but so far as species under cultivation are concerned, artificially produced hybrids are very few. Why this is so seems rather difficult to explain, but the fact remains.

With regard to the cultivation of Primulas generally, all the members of the family delight in pure air, and as a rule plenty of moisture; shade in some cases is necessary, but if sufficient moisture is provided, shade is not of so much consequence. As to soil, any good loamy soil with a little leaf-mould added will suit their requirements.

Although Primulas are nearly all true perennials, yet it will be found best in practice to treat a number of them as if they were biennials. Seedlings should be raised from all the species that will ripen seeds. Seedlings are usually so much more vigorous than old plants, that there is far less trouble in keeping up a healthy stock, and there is also the chance of obtaining improved varieties. Of course, double-flowered or named varieties require to be kept up by division, or by cuttings. Most kinds are found to divide readily enough, but many of the rarer Indian species particularly, although they may be divided easily and form nice young plants, are apt to die off in a most unaccountable manner afterwards.

Allied to Primroses are many beautiful plants of a very high rank, including *Cyclamen*, *Dodecatheon*, *Androsace*, *Soldanella*, &c., but these must stand over for the present.

The following species and varieties of *Primula*, mostly in flower, were exhibited to illustrate the lecture:—

<i>Primula vulgaris</i> .	<i>Primula Mars.</i>
" blue var.	" eight other seedling unnamed vars.
" double-fld. var.	" x pubescens.
" elatior, Jacquin.	" x Kerneri.
" var. cœrulea.	" x venusta.
" gold-laced Polyanthus.	" x Thomasini.
" farinosa, fancy Polyanthus.	" Auricula.
" scotica.	" double purple and double yellow.
" P. frondosa.	" rosea.
" carniolece.	" cashmeriana.
" marginata.	" Reidi.
" grandiflora.	" prolifera.
" decora, Sims.	" floribunda.
" alba.	" mollis.
" nivalis, Hort.	" japonica.
" ciliata purpurata.	" Sieboldi.
" intermedia.	" obconica.
" Balfouriana.	" Poissoni.
" Jupiter.	

KEW NOTES.

BUDDLEIA COLVILLEI.—This is now flowering in the Himalayan section of the temperate-house, and for the first time at Kew. When figuring it in the *Botanical Magazine*, in 1895, from material supplied by Mr. Gumbleton, in whose garden it flowered for the first time in Europe, Sir Joseph Hooker called it "certainly the handsomest of all Himalayan shrubs, and it is impossible to exaggerate its beauty as seen in the borders of a Sikkim forest, covered with pendulous masses of rose-purple or crimson flowers, relieved by the dark green foliage." In saying this, Sir Joseph must have excluded *Rhododendrons* from his survey of Himalayan shrubs.

The *Buddleia* is a vigorous grower, with long shoots, leaves 6 inches to a foot long, and the terminal racemes nearly a foot long, clothed with Pentstemon-like flowers. The plant requires protection, except in the warmest parts of the British Islands. (See *Gard. Chron.*, Aug. 13, 1892, p. 187, fig. 32.)

FEIJOA SELLOWIANA.

A plant of this interesting shrub is now in flower in the temperate-house. It was introduced a few years ago from Uruguay by M. André, in whose garden at Golfe St. Juan it flowered and fruited in 1896. It has the habit and appearance of *Paidium*, the leaves being ovate, leathery, and 2 inches long; the flowers axillary, drooping, fleshy, 2 inches across, dull purple inside, with a large brush-like tuft of purple filaments, and yellow anthers. Over

yellow flowers; and as it is smaller in stature—the plant being about 4 feet high, and the panicle 6 feet—it may be grown in positions for which the larger species is too large and coarse. Plants of it grew for several years on the margin of a pond at Kew, but a severe winter proved fatal to them. It is to be met with here and there in Cornish and Devonshire gardens. There is a good example of it in flower in the temperate-house at Kew.

CARPENTERIA CALIFORNICA.

This beautiful shrub appears to have found congenial conditions in the large unheated division of the temperate-house, and it will be covered in a few days with flowers. It is not hardy at Kew, not even under the shelter of a wall; although in Miss Jekyll's garden at Godalming, at an elevation

the *Forsythias*. Unfortunately, this has not proved to be the case, for even in the garden of Mr. Ewbank, in the Isle of Wight, a winter proved too severe for it. As is the case with many Californian plants, whilst our summers are agreeable to them, our winters are generally injurious, and sometimes fatal. (See *Gard. Chron.*, Jan. 22, 1859, p. 52, with fig.)

ECHINUM CALLITHYRSUM

has been flowering freely in the Temperate-house for some time. It is grown in 9-inch pots, and in three years from seeds it forms a good specimen, with very large erect spikes of purple-blue flowers. It is one of the most effective plants grown for this house.

TIBOUCHINA (MELASTOMA) HETEROMALLA.

Two very large bushes of this sturdy *Melastomad* are now flowering freely in the warmer division of the temperate-house. Small, and grown in a pot, this is usually a scrubby plant; but when planted out and allowed room to develop, it is a worthy companion to *Pleroma macrantha*, which, by-the-by, we are now asked to call by the less euphonious name of *Tibouchina semi-decandra*!

PENTAPTERYGUM SERPENS.

A group of plants of this *Vaccinium*-like shrub is now a picturesque object in the Himalayan-house. They are planted in a "rootery," where they are happy, and are flowering freely, some of the branches carrying fringes of flowers nearly 2 feet in length.

Many other plants in this house are in noteworthy condition, i.e., *Lilium Henryi*, a group of about fifty stems of extraordinary vigour; *L. rubellum*, *L. Lowi*, in flower; *Nandina domestica*, in flower; *Embothrium coccineum* has flowered again. W. W.

THE ROSARY.

AMONGST THE ROSES.

I COULD not head this paper by saying, "Love amongst the Roses;" for although the little blind god was always associated with this flower, it has a very different aspect when its votaries are aged gentlemen with spectacles and grey hairs, or ladies of an uncertain age. But still, I think there is a good deal of real earnest love amongst the modern votaries of the Rose, whom no amount of trouble deters from carrying out the culture of their favourite flowers; and now is the time when that care has to be doubly diligent, and when all the reasons for not taking the trouble have to be dismissed, for the work that now devolves on the Rose-grower is not of the very pleasantest kind. We have, I hope, passed that period when we are to look for the sharp frosts and cold winds, which during the present season have done so much damage. A good deal of injury has no doubt been done by the frosts and winds which have occurred towards the close of last month; but now the exhibition season is close upon us, we shall do well to be on our guard against the invasions of our enemies. First and foremost amongst these plagues is the Rose-maggot: there is no way of getting rid of the injury caused by this creature but by hand-picking and crushing it; there is one comfort, that for a watchful eye its approach is very evident. When you see a couple of leaves fixed together, you may be sure that your enemy is in its entrenchment; you must invade his quarters, extricate him from his hiding-place, and then crush him between finger and thumb. This, no doubt, is very nasty, but still it must be done. I have often tried syringing, but it is of no use. Those who wish to preserve their Roses will not grudge even this work. Where the maggots come from it is difficult to say; the eggs have probably been laid in the previous autumn, and therefore it is well at the time of pruning that the cuttings should be carried away out of the garden and burned. It need hardly be said that this labour should be gone through every second day, for



FIG 118.—SCHIZANTHUS, WISETON VARIETY, EXHIBITED AT THE TEMPLE SHOW BY MESSRS. HUGH LOW AND CO.

(See Report of Temple Show in our issue for May 26, 1900, p. 2 of Supplement.)

and above the beauty of its foliage and flowers it has an edible Guava-like fruit, with a rich aromatic odour and flavour. It prefers a cool-house in England; possibly it would grow against a wall in the open air in the warmest situations—it rapidly becomes unhealthy if placed in a stove temperature. For sunny conservatories, where, for instance, *Camellias* are happy, it is a worthy plant. The fruits are egg-shaped, and 2 inches long. (See *Gard. Chron.*, Dec. 24, 1898, p. 451, figs. 134, 135.)

PHORMIUM HOOKERI.

Although it is now twelve years since Sir Joseph Hooker called attention to the merits of this species of New Zealand Flax as a garden plant by an excellent figure and description of it in the *Botanical Magazine*, it has not yet become known in horticulture. It differs from the ubiquitous *P. tenax* in its narrow, comparatively thin, arching, uniformly green leaves, and in its loose panicle of

of 400 feet, it withstood the cold of winter without a leaf being injured. Mr. Poë is most successful with it by growing it planted in a tub in the open air, except during very cold weather, when it is removed into a cold house. It forms a *Cistus*-like bush about 6 feet high, and bears terminal loose panicles of pure white, fragrant flowers, 3 inches across, and in general appearance like single white Roses. (See *Gard. Chron.*, July 24, 1886, fig. 22.)

FREMONTIA CALIFORNICA.

This beautiful shrub appears to require the same treatment as its countryman, the *Carpenteria*. It is not hardy at Kew, although it has lived for several years and flowered sparsely against a wall. But in the Himalayan-house it has quickly grown into a beautiful pyramidal specimen 8 feet high, and in a few days will be full of flowers. When first introduced in 1866, it was described as the choicest early-flowering hardy shrub, more than rivalling

although the maggots may not absolutely destroy the bud, they will so nibble it away, it will be absolutely useless for exhibition purposes.

I have never been troubled by that pretty insect, the Rose-beetle; in fact, I have hardly ever seen one in my garden. But every Rose-grower has had his bitter experience of the aphides, although I must say for the last three years they have troubled me but very little. Why this is, I cannot say. Our Hop-growers connect (whether rightly or wrongly I do not know) the invasion of their gardens by the fleas, &c., which do them so much injury with the east wind. We have had, in all conscience, enough of that this season; the plants in the open or on the walls, are very little affected by it. Here syringing is the true remedy; it is possible, of course, to rub the shoots between finger and thumb and so destroy them, but I think syringing with a decoction of quassia-chips will do the work more effectively. This syringing should be done two or three times, and although the decoction is clean enough, and not like some of the insecticides recommended; it should be followed by a syringing with pure water.

It is time now to examine the plants for the purpose of disbudding them. I presume that growers, whether they are exhibitors or not, like to have large and well-formed flowers in their gardens, therefore the process of disbudding should now be carefully proceeded with. Each shoot will be found to have, generally speaking, three buds, and some sorts a good many more; these must all be removed except one, choosing for that purpose the most shapely and most perfect one. It generally happens that one bud is more advanced than the others; this, if perfect, should be left, and the others gently removed, which is best done by using a small blunt stick, or the broad end of a toothpick—it requires some little heroism to carry this out, but it must be done if the grower wishes to have his Roses as good as can be. This does not, of course, apply where Roses are grown as large bushes, when the greatest amount of bloom is the one desired object, and the grower is satisfied with smaller and more numerous flowers, and will not groan when he goes to an exhibition and sees flowers of the same variety so much superior to those that he has been able to grow.

There is another matter which demands attention at this time, and that is affording water—it ought to be applied now, and that thoroughly; but it is very difficult to estimate what is wanted in this respect in different localities. In the article on agriculture in the *Times* of Monday, May 28, these words occur: "the copious rains which have occurred in all parts of the country," this is utterly inapplicable to the south-eastern parts of England. During the months of April and May we have had but 1.32 of rain, and it need hardly be said this is utterly insufficient to help on the Roses, and water must be resorted to, that is, if you have the water—I, happily, am in the position of having a copious supply. (Since writing this, our utter unwisdom is very plainly manifest by what has occurred at the very close of the month, for here we had on Thursday night, and all Friday, just 2 inches of rain, amply sufficing for all our wants). In the early part of the month a dose or two of liquid-manure will be given; and in affording water it should be distinctly borne in mind that it must be done properly, not in dribblets, but a good soaking every second day, while the ground may be gently stirred with a hoe after it has dried a little. It will be well, too, if any of the plants make vigorous shoots, to place a stake to them to prevent them from being blown about by the wind.

One of the chief pleasures to the Rose-grower, who is also an exhibitor, will be to look out for the new Roses which are brought forward; there is a considerable number of these from the continent, somewhere about seventy, by far the larger number being Teas. Of course, nothing is known of these except from the glowing descriptions of the raisers, but what Rose is likely to be brought forward that

will beat our old favourites, such as Catherine Mermet, Anna Olivier, Marie van Houtte, Innocente Pirola, Jean Ducher, Comtesse de Nadaillac, Madame Hoste, and others. There is one that comes to us with a great flourish of trumpets, hung about with all sorts of decorations, including gold medal and a certificate, called "Soleil d'Or," and raised by Pernet Ducher, of Lyons, by crossing Persian Yellow and Antoine Ducher, H.P. I have not met with any one who has seen it, and therefore we must be contented, I suppose, until some one brings it forward. There are also several home-raised varieties, but it would be invidious to select any as deserving of commendation. There were but few brought forward last season, and here again we must quietly wait; of course, there is a much better chance of seeing these properly exhibited than the foreign varieties, but the paucity of new Roses which have been added to the National Rose Society's official catalogue during the past three years does not lead us to cherish great expectations. Who will give us a white Charles Lefebvre, or a yellow A. K. Williams? I think that of garden Roses we are likely to have a good many, and probably some of new races will claim our attention. There seem to be some of much interest coming to us from the sister island, from whence we have already received so many additions to our exhibition Roses. *Wild Rose*.

THE WEEK'S WORK.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Late Peas.—Sowings may be made from the present time till the end of this month of varieties found to succeed in the district. As the later Peas are exposed to considerable changes of weather in early autumn, the sowings should be afforded good positions in the garden, and a deeply-dug soil if not much manure. The dwarf varieties should be chosen for sowing, as these come in pod quicker than the tall growers. Mildew does much harm to late Peas, and to guard against this the seed should be sown thinly, and water should be freely afforded in all stages of growth, more particularly the earlier.

Runner Beans.—If seed of these were sown at 6 inches apart, there will be no necessity to thin the plants, but where thick sowings were made, thinning out to that distance apart should be performed; for unless this be carried out, the foliage will become so entangled that it will be impossible for the flowers to set freely. Staking may take place as soon as the plants are 6 inches high, in order that the plants may have early support. Good, strong stakes should be used, and where a width of 8 feet is allowed between the rows, the sticks should not be less than 9 feet in length. These should be pushed into the ground deep enough to keep them steady, and the longer they are, the better. When the tops of the bine reach the tops of the stake they should be stopped, which will encourage the growth of laterals, which will produce pods probably down to the ground. Another sowing may still be made in warm districts, although in cold ones it is superfluous. The distance allowed between the rows in this case should not be more than 3 feet, the plants being topped occasionally so as not to let the plants exceed that height.

Thinning and Transplanting.—In early parts of the country, plants raised from sowings made in March and April will be sufficiently advanced to be thinned for the last time. If some crops have not been thinned at this date, the work should be undertaken forthwith, crowding being a hindrance to growth. The thinning should be performed in dull or showery weather, in the case of large breadths of Parsnips, Onions, and Carrots; but where these vegetables are not cultivated by the quarter, but in beds, these may readily have water applied before and after thinning. Beetroots of the May sowing should now be thinned, and the best thinnings made use of in filling gaps in the lines, or these may be planted on a piece of fairly rich ground. The holes for transplanting should be made with a long dibber, so as to take a plant

without doubling up the root in the least. When the Turnip and Parsnip-beds are thinned, the former should be 11 inches, and the latter at 1 foot apart. If the Carrot-seed was sown thickly, they will now require to be thinned, but moderately thin sowings will not need this to be done, as owing to the demand in most houses for young Carrots, the thinning can be done as roots are required. Parsley, in order that it may grow into strong, bushy stuff, should be thinned to 8 inches apart.

THE FLOWER GARDEN.

By J. BENROW, Gardener to the Earl of Ilchester, Abbotbury Castle, Dorset.

Daturas.—Specimen trees of the double-flowered variety of *Datura Wrighti* and of *D. (Brugmansia) sanguinea*, wintered in a greenhouse, may now be placed in warm yet sheltered parts of the flower-garden. Although shelter from the colder winds must be provided, the plants must have pretty full exposure to sunshine, or flowers will be few in number. Both species start rather late into growth, and the soil in which they grow should be rich, and treatment afforded the same as that found to suit the *Dahlia*. As *Daturas* only commence to grow and produce flowers when the ground has become warmed by sun heat, the application at frequent intervals of much diluted liquid-manure is a great help to these plants at that date and onwards so long as flowering continues. Standard specimens are highly ornamental objects, as isolated specimens on a lawn or in prominent positions in sub-tropical beds, especially when associated with *Fuchsias*.

Propagation of *Daturas*.—The woody members of the genus grow readily from cuttings of the roots taken at this season, and any old specimen may be shaken out of the pot or tub in which it has been growing, the roots washed, and then cut up into 3 or 4 inch lengths, and be dibbled out in pans or pots placed in a hot bed and syringed once or twice daily. Also side stocky shoots taken off in August or September form roots readily, and perhaps this is the best method where only a few plants are wanted.

Annual species of *Datura*, as *D. ceratocaulis*, *D. fastuosa*, *D. Metel*, *D. muricata* and *D. quercifolia* raised from seeds sown in heat may, if well rooted in pots, be planted out in sunny spots in borders or otherwise; and the growth of the plant being less robust than those previously mentioned, they should be securely fastened to wooden stakes, and the weakly interior shoots removed.

Roses.—The N.E. winds have been followed as usual by attacks of mildew, which, if not destroyed, will cripple the bushes for the season; the best fungicide to use against it is black sulphur or the ordinary flowers-of-sulphur (*S. vivum*), applied by means of a distributor. The application is best made whilst the foliage is wet with dew or rain. A dressing should be given at intervals of a week until the mildew has disappeared. The sulphur may be dusted on the soil under the Roses if the attack is a bad one, sulphur, if not used in excess, being harmless to plants. If green aphides appear on the Roses, spray them with nicotine, quassia, or tobacco-water, or use soap-suds with the garden engine for a few days.

Eucalyptus Globulus makes a pretty decorative plant when used in combination with *Delphiniums* of various shades of blue, the glaucous hue of the foliage of the one forming a harmony of colour with that of the flowers of the other plant. Such beds, if edged with the plants of *Lobelia cardinalis*, or its variety *Firefly*, may be planted near the more formal or geometrical garden.

Wallflowers may now be sown in variety on beds of rich and sandy soil, sowing early, mid-season, and late varieties if a long succession of flowers is desired.

General Work.—Lawns must be mown once or twice a week as seems required, and if the grass be thin during the first and second years after sowing, let the scythe be used in preference to the mower. When cutting with a mower always use a collecting box, or weediness of the lawn is sure to be brought about. The edges of the turf should be clipped after each mowing, and weeds on walks killed with a weed-killer, due care being taken by the workmen in applying it. Avoid the use of weed-killer if tree-roots traverse the paths.

PLANTS UNDER GLASS.

By T. EDWARDS, Foreman, Royal Plant Gardens, Frogmore.

Stoves.—The temperature by fire-heat during the night should be about 80°. Damp the paths frequently, and sprinkle the plants overhead to keep the atmosphere sufficiently humid. During strong, drying easterly winds, increased vigilance is necessary in respect to ventilation, so as to prevent the plants receiving any check. It is safer not to give air at all until the wind changes, and instead, to shade more during bright sunshine. The temperature may safely be permitted to rise to 100°. If a house is devoted exclusively to Crotons, expose the plants to full sunshine. This treatment will bring out the beautiful colours of the leaves, and if tepid manure water be applied twice a week it will be beneficial.

Genera and allied genera, such as *Nægelia*, &c., may be shaken out and started singly in small pots in an intermediate-house, using a light compost of equal parts peat, loam, and leaf-mould, with sand. Generas are not usually grown from seed, but they may be grown and flowered very easily in one year if seed be sown early, in February or March, and cultivated in the stove similarly to *Gloxinia* seedlings. The *G. zebрина* section succeeds best, and varieties with yellow and orange markings upon the leaves may be raised from a packet of seed.

Phryniums.—Move these into their final pots, selecting the best-coloured plants. The bold variegation of this valuable decorative plant is best developed by being grown in poor sandy soil and confined root-space; 5 and 6-inch pots are quite large enough. Grow on in strong heat, and syringe frequently, which is essential to keep down red spider.

Palm-house.—Syringe the plants thoroughly each morning and afternoon with soft water, and encourage free growth by an occasional dressing with some fertiliser. Clay's appears to suit Palms better than anything else I have tried, and after its use the foliage of the plants acquire a rich, glossy, dark appearance. Shade from sunshine is always necessary, and canvas may be tacked on roof and sides of the house in the summer months.

Zonal *Pelargoniums* for autumn and winter flowering will now be ready for the final shift to 6-inch pots. Use a compost of four parts loam to one part spent Mushroom-bed manure, mixed with some rough grit or road sand. Pot firmly with a rammer, and keep the old ball slightly below the surface of the new soil. Place the plants in a cold pit, and shade them for a few days, and afterwards stand outside on a bed of coal-ashes fully exposed to the sun. As soon as roots have reached the side of the pots, give a dressing with some fertiliser. Pinch off the flower stems as they appear, until the beginning of September, and stop any strong or irregular shoots. Thin out the plants as required, to induce sturdy habit and well-ripened wood.

Sow *Balaams* for succession, also *Celosias*, and *Browallia speciosa* and *clatior* (white or blue) in 5 and 6-inch pots. These annuals come into flower when the summer conservatory plants are passing, in October, and can be thrown away when space is required for *Chrysanthemums*, &c. They may all be grown in pits, and allowed plenty of space now that bedding plants are being cleared out.

FRUITS UNDER GLASS.

By J. ROBERTS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Peaches and Nectarines.—When the fruit has been cleared from the earliest house, give the trees a thorough washing with the syringe or garden engine. At the same time the borders may be afforded a good soaking of water. Gradually reduce the temperature of the house by giving increased ventilation, so that the foliage may be brought into a condition to stand full ventilation night and day after a fortnight's time. When the trees have had a week's rest, remove or stop all sappy and superfluous growths. Regulate the young growths thinly so that the sun and air can have full influence upon them. Syringe the trees frequently, and keep the borders moist—occasionally with liquid manure—to maintain the foliage in a healthy state during the heat of summer.

Succession Houses.—The treatment of these will need to be different, according to the development of each. The second early-house should now be ripening such fine Peaches as Royal George, Belle-garde, Crimson Galande, Dymond and Violette

Hative; and Lord Napier, Dryden and Humboldt Nectarines. Give free ventilation, and cease to syringe the trees when the fruits begin to soften. Expose the fruits to full sunshine, and keep the borders moist. Houses in which the trees are at the "stoning" stage are best kept under cool treatment until the process is completed. Afterwards fork into the surface-border a good dressing of wood-ashes and soot, and follow this by a thorough watering. The cooler that the later Peach trees are kept during summer, the finer will the fruits be in the autumn.

Figs.—Permanent trees now swelling their second crop will need generous treatment. Where succession houses exist there will not be any urgent necessity to hurry this second crop, and increased ventilation will give the fruits more time to swell, and also tend to an earlier ripening of the wood and a fuller first crop of fruit next season. This crop, if ripened without the aid of much fire heat, will be of the highest quality.

Later Houses.—Trees swelling fruit must be closely watched at this season for the appearance of red spider. Use the syringe freely each morning and evening. In well-drained and open borders abundance of water will be required. Stop gross growths, and cut away all suckers from the roots and main stems of the trees; but allow medium growths to keep their growing points intact for next season's fruiting.

Pot Trees.—The present is a good time to put large bush trees into tubs to get them well-established before autumn. Give 4 to 6 inches of drainage under these large bushes, and use a compost of good fibrous loam, old mortar rubble, chalk and half-inch bones. After tubbing, keep them in a warm, moist atmosphere for a month or six weeks, and gradually harden them to stand full exposure in a sunny position outside during August and September.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WISEMAN, Bart., Clare Lawn, East Sheen, S.W.

***Cymbidium Lowianum*.**—This grand Orchid is considered a warmth-loving plant by some gardeners, although much better results are obtained when it is grown in a cool, moist house. The term cool in this connection applies rather to the absence of fire-heat than to a low temperature, for undoubtedly the plant is the better for a moderately high temperature from sun-heat during the growing season, in conjunction with free ventilation and aerial moisture, its blooms remaining in good condition for more than three months, but the prudence of retaining them so long is doubtful. It is better practice to remove the flower-spikes off after about six weeks' flowering, and after affording a rest of two weeks' duration, re-pot them. Speaking generally, the plant should be re-potted once in three or four years, and the Orchid-pots used should be large enough to allow ample room for that length of time. A few large concave crocks should be put at the bottom of the pot, and on these the plant should be stood so that the upper surface of the ball comes 1 inch below the rim. The potting compost should consist of two parts of lumpy peat to one of good turfy yellow loam, some small quantity of decayed farmyard manure, sphagnum-moss, and as much sand as will make it porous. A certain quantity of small crocks, mixed with the compost, whilst carrying out the potting, will contribute to proper drainage. It is advisable to employ a rammer in firming the soil, which should not be made hard. When dividing a plant an edging iron, or a sharp spade should be used, this being preferable to disentangle the roots. For about three weeks after being re-potted not any water will be required, but at the end of that period of time afford water once copiously. Let the plant be syringed overhead twice a day when favourable weather prevails, and for a few weeks after root disturbance, and close the upper ventilators of the house about 3.30 P.M. From the middle of the month of July to that of September, ventilators in general may be opened night and day. Plants not repotted may be afforded much diluted farmyard manure-water, but not to those recently repotted, before the flower-spikes appear in the winter. Light shading should be afforded from 9 A.M. till about 5 P.M.

Cymbidium giganteum is now beginning to grow, and may receive a shift if more root space is required by any of the plants. As this species roots less freely than *C. Lowianum*, more drainage should

be afforded; but in other respects the treatment is identical. The same remarks apply to *C. grandiflorum*, or *C. Hookerianum*, as it is sometimes called. The winter treatment of the different species will be given at the proper time.

Cymbidium Tracyanum may be repotted at this date, the compost used being the same as that advised for the first-named. Let the plant stand in the warmest part of the house, and afford it abundance of water whilst growing freely.

Cymbidium tigrinum is the dwarfest species with which I am acquainted. It should be grown in pans that are well-drained, and stood in the house in which *Masdevallias* are grown. It may be planted in a compost consisting of equal parts of turfy loam and peat, together with sphagnum-moss, and as much silver sand as will give porosity. Any plant needing root space may be attended to now, afterwards just sufficient water should be afforded as will keep the soil merely damp until rooting becomes active. When the pseudo-bulbs are formed a very moderate supply of water will suffice for the needs of the plant.

Cymbidium Devonianum is a species which may be grown in the *Masdevallia*-house. The plant has recently finished flowering, and any plants needing more space or fresh soil may be repotted. The kind of compost recommended for *C. tigrinum* will suit this species, elevating the base of the plant slightly, so that the flower-spikes, which are projected horizontally, may find their way over the rim. It thrives when suspended, or on a shelf near the glass. Water may be afforded as in the preceding case, and the undersides of the leaves should be sprayed frequently in order to dislodge red-spider.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener to F. A. BEVAN, Esq., Trent Park, New Barnet.

Spraying Trees.—The Apple-trees about Barnet have set what promise to be full crops of fruit, and the growth is clean and strong. Caterpillars are not so numerous as they once threatened to become, still I have had every tree on which they are present well sprayed, the insecticides used being of the strength and applied in manner directed by the makers. It is found that insecticides which poison the food of the insects are more effective than those which kill by contact. Two ounces of Paris Green, 1 lb. of fresh lime, a little soft-soap, and 20 gallons of water, or Bentley's Specific used as directed, will soon clear the trees of caterpillars and do no harm to the foliage or fruit gardens. Where there are crops under the trees, Paris Green should not be used; but Bentley's need not be feared. If this one is objected to, let either "Kill-m-right" or a decoction of Quassia be used instead, either of which kills by contact. These various insecticides should be applied with a sprayer, of which many makes are in the market. Choose a quiet day for the job. These remedies may be used on Pears and Plums infested with caterpillars. Cherry-trees need to be often examined during cold dry weather, a time when the black aphid nearly always infests the young growths. It is important that this pest be promptly dealt with, otherwise they will greatly cripple the shoots in a few days. Either of the last two insecticides mixed at their full allowable strength will destroy it.

Cordon Pears.—These have set heavily, and will need severe thinning if fine specimens are wished for. A certain amount of thinning may be carried out forthwith, as the best specimens in the trusses are now distinguishable. In thinning fruits regard must be had to those varieties whose fruits come to a large size, thinning these more freely than middle and small-fruited varieties. Where the Pear-midge works mischief, the thinner should avoid leaving abnormally large fruits, as such generally contain one or more of the larvæ, but such fruits should be removed and burnt forthwith. As most cordon Pears are budded on the Quince, they suffer from the lack of moisture in the surface soil to a greater degree than do Pears on the wilding stock; and it is advisable to afford water abundantly in dry weather, due regard being had to the nature of the soil. Before applying water to Pears, a slight dressing of potash and phosphates may be applied, and the soil slightly pricked over. The cordon Pears will be the better for a mulch of long stable-dung over the roots. The growths arising from the spurs may be stopped at the fifth leaf ten days hence, but the leading shoots should not be shortened if there be space to train them in.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, JUNE 12. — Paris Universal Exhibition (temporary Show).
Cambridgeshire Horticultural Society's Show, at Cambridge.
Salterhebble and District (Hallifax) Rose Show.

WEDNESDAY, JUNE 13. — Yorkshire Gala (3 days).
Cornwall Agricultural Show, at Truro (2 days).

[* We have reason to think that this show has been deferred until June 13.]

SALES.

TUESDAY, JUNE 12.—Sale of Greenhouses, Frames, &c., at the Chilwell Nurseries, Nottingham, by Protheroe & Morris.

WEDNESDAY, JUNE 13.—Sale of Greenhouse Plants and Nursery Stock, at the Chilwell Nurseries, near Nottingham, by Protheroe & Morris (two days).

THURSDAY, JUNE 14.—Sale of Orchids at Elmet Hall, Roundhay, Leeds, by Hepper & Sons.

FRIDAY, JUNE 15.—Sale of Orchids from Messrs. F. Sander & Co., at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—60° 3'.

ACTUAL TEMPERATURES:—

LONDON.—June 6 (6 P.M.): Max. 75°; Min. 49°.

PROVINCES.—June 6 (6 P.M.): Max. 71°, Ipswich; Min., 47°, Peterhead, N.B.

We have so often and so persistently advocated the processes of spraying for the various insect attacks to which our fruit-trees are subjected, that we can share the satisfaction experienced by the Professors of Wye College at the result of their conflict with the Currant-bud mite. We are not aware whether the prussic-acid treatment has been tried for this mite by other experimenters, but, in any case, there is no reason to doubt the success of the operations. The process is not only effectual, but it is cheap and easily carried out. Nevertheless, the risks may be so terrible to those unaccustomed to handle such ingredients, that we think the plant-doctors of the future, or the present scientific staff of the agricultural colleges, should at least, at first, be alone entrusted with the conduct of the operations.

Mr. COUSINS, in the valuable note which he has contributed to the *Journal of Wye College*, and to our own columns, p. 258, shows how readily the plan may be carried out.

To those who, like ourselves, have so long urged the establishment of colleges like that of Wye, where not only instruction but experimental research may be continuously carried out, these experiments are particularly gratifying, as they show a justification for the establishment of such institutions, which appeals even to the ratepayer.

Spraying in its various forms (including fumigation) is becoming more and more used in this country, though we are still much behind our American cousins in this matter. The little book published by the late E. G. LODGMAN, of the Cornell University, entitled *The Spraying of Plants* (MACMILLAN), is one that should be consulted in case of need by every gardener and farmer.

Whilst alluding to the use of poisonous substances in dealing with garden-pests, we may fittingly call attention to a letter in our last issue from the Secretary of a society to regulate the sale of poisons used for other than medicinal purposes.

At present it is a grievance that nurserymen, sundriesmen, and others, whose business it is to supply garden-requisites, are not allowed to sell articles containing poison. The liberty to sell such materials is at present confined to registered pharmaceutical chemists, and is surrounded by precautions to obviate as far as possible either accidental or wilful disaster. No reasonable person can doubt the propriety of such precautions. They may not always be available against human stupidity, carelessness, or wickedness; but, at least, they are calculated to prevent a large amount of mischief, or to enable it to be detected with certainty and rapidity.

All that is asked is that the horticultural sundriesmen or traders may be allowed to distribute poisonous substances under the same or under similar restrictions as those imposed on the pharmacists. Whenever we have received samples (as we frequently do) of these compounds from a registered chemist, there has been a poison label attached to the bottle, and very often the bottle itself has been of such a shape and colour as of itself to attract attention to the poisonous nature of the contents. That some restrictions of this kind are necessary has been made obvious to us by the receipt from dealers who were not pharmacists of "weed-killers," and also of other compounds much used in gardens, with no indication whatever of their poisonous nature.

If the new society will insist on all reasonable precautions being taken to prevent accident, there will be no reason whatever that horticultural dealers should not be entrusted with the sale of the compounds used in their business.

NATIONAL ROSE SOCIETY.—At a special general meeting held on June 5, at the Horticultural Club, Dr. MASTERS in the Chair, Mr. C. B. HAYWOOD was elected Treasurer till the next general meeting in the room of the late T. B. HAYWOOD, Esq.

STEALING FROM LORD ROSEBURY'S GARDEN.—A man described as a horsebreaker has been sentenced to six weeks' imprisonment for stealing a quantity of Magnolias, Rhododendrons, Hyacinths, Ferns, &c., from Lord ROSEBURY's garden at The Durdans, Epsom.

"BOTANICAL MAGAZINE."—The *Botanical Magazine* for June contains coloured illustrations and descriptions of the following plants:—

Convolvulus macrostegius, Greene.—A handsome, white-flowered climber, with cordate, ovate-acute, repand leaves. It is a native of Lower California, whence it was introduced by Mr. Gumbleton. It flowers freely against a wall at Kew; tab. 7717.

Mammillaria vivipara, Haworth.—A native of the Rocky Mountains; of ovoid form, ribbed and tubercled, the tubercles bearing about fifteen straight-spreading spines; the flowers are pink, or by variation, white or purple. It was grown at Kew in the open air, sheltered by the buttresses of the Palm-house; tab. 7718.

Cryptocoryne Griffithi, Schott.—A Malayan Aroid of singular construction, and of botanical interest; tab. 7719.

Dipladenia eximia, Hemslay, in *Gardeners' Chronicle*, 1893, ii., 120.—A climbing stove plant, with rose-pink, trumpet-shaped flowers. It is supposed to be a native of S. Brazil; tab. 7720.

Helenium tenuifolium, Nuttall.—An erect, much-branched annual, with crowded, linear leaves, and terminal flower-heads with broad, deflexed ray florets, whilst the disc florets are aggregated into sub-globose heads. It is a native of the Eastern United States, and forms a showy annual in the autumn at Kew; tab. 7721.

THE PROPOSED LABORATORY AT KEW.—The question of a site for the Physical Laboratory that it is proposed to erect at Kew, is still arousing much discussion. On the one hand it is asserted that, placed outside the gardens and in the Old Deer Park the building would be no obstruction, and "would not disturb the neighbourhood;" while those opposed to the scheme declare that there are other localities less open to objection, that it would spoil the seclusion of the Queen's Cottage grounds recently added to the woodland part of the grounds. It is therefore a question whether the usefulness of the laboratory (which would no doubt be great), would be sufficiently so to compensate for its erection close to this beauty spot, to the attractions of which it would by no means contribute. Remarks lately made in the House by Mr. AKERS-DOUGLAS, and Mr. SKEWES-COX, were not sufficiently definite to indicate whether or not the erection of the Laboratory on any particular site was already decided upon.

HORTICULTURAL TEACHING IN GERMANY.—Herr L. WITTMACK, in a paper contributed by him to the *Official Catalogue of the German Section of the Paris Exhibition*, mentions the measures taken in Germany with regard to horticultural training. The science, he says, is highly developed. The most advanced teaching emanates from three institutions: the Royal School of Horticulture at Wildpark, near Potsdam, established for seventy-five years, and shortly to be transferred to Dahlem, near Berlin, in the vicinity of the new Botanic Garden; the Royal Institute of Pomology at Proskau, near Oppeln (Silesia); and the Royal School of Pomology and Viticulture at Geisenheim-sur-le-Rhin. The kingdom of Wurtemberg has, since 1860, possessed a private institution, the Pomological Institute of Reuthingen; and Saxony, since 1892, has maintained a School of Advanced Horticulture in Dresden. At Koestritz is an establishment for general instruction. Elementary schools of gardening are sometimes in connection with, sometimes independent of, higher-grade schools; they are maintained by different confederate states, or by the governments of the provinces. Prussia includes twenty-three, Bavaria five, Saxony two, Wurtemberg four, the Grand Duchy of Baden, Saxe Weimar, and the Grand Duchy of Hesse, each one. In all these establishments instruction is given in the culture and utilisation of fruits and vegetables, &c.; moreover, instructors continue this course of training in different towns. In certain cities, such as Berlin and Leipzig, are schools of gardening for young men, who do practical work in the day; in other cases, again, in Berlin for instance, there are gardeners who themselves make arrangements for obtaining courses of instruction; often apprentices and youths attend the popular courses for the adults. In some localities they teach gardening and the cultivation of fruit-trees to children in the gardens attached to their schools.

THE PARIS CONGRESS OF HORTICULTURE was opened by M. DUPUY, the Minister of Agriculture, in presence of MM. VIGER (President), TRUFFAUT, CHATENAY, MARTINET, WITTMACK, MICHELI, RODIGAS, &c. Papers were read on the heating of glass-houses, the management of public gardens, the diseases of Clematis, the mildew of Lettuces, which M. MAX CORNU says may be combated by soaking some mulching substance with solution of copper-sulphate, and then spreading the mulch over the soil in which the Lettuces are grown.

CONGRESS CONCERNING THE CIDER-MAKING INDUSTRY.—An International Congress concerned with the Cider industry is to be held in Paris in connection with the general Exhibition, from October 11 to 13. The organising committee appeal to pomologists, growers, and authorities of all countries to give the Conference the benefit of their knowledge and experience as regards the following questions, which are proposed for discussion:—1. Raising and planting Apples and



VIEW IN THE GARDENS OF MISS SULLIVAN, FULHAM.

Pears for cider and perry. 2. Principles on which to form a selection of the best varieties of fruits for wine or cider. 3. Experimental orchards and stations. 4. The teaching of fruit-growing. 5. Drying and preserving wine-fruits. 6. Use of yeasts in cider-making. 7. Extraction, filtration, sterilisation of must. 8. The spirit present in cider and perry. 9. The cider, and cider Apple-trade in France and elsewhere. All communications in connection with the Conference should be addressed to M. JOURDAIN, Rue Mayet, 21, Paris.

GERMAN HORTICULTURE AND FORESTRY.

A communication has reached us from HERR L. WITTMACK, of Berlin, on German horticulture and forestry. This paper is reprinted from the official catalogue of the German section of the Paris Exhibition, and deals briefly with the history and the present condition of horticulture of the kindred crafts in Germany. For the convenience of those readers for whom it was chiefly intended, the bulletin is written in French, and will be read with much interest by those to whom the subjects dealt with are of importance.

THE DEVON AND EXETER GARDENERS' ASSOCIATION will make their annual summer outing on Wednesday, July 11. The party will proceed by train and brake to Lyme Regis, and subsequently to Pinhay, the seat of WILTON ALLHUSEN, Esq. After inspecting the gardens and grounds, the journey will be continued to Roundon, the seat of Sir CUTHBERT PEEK, Bart., where, in addition to the interesting gardens and grounds, the remarkable and historical landslip will be inspected. From the landslip a half-hour's walk will bring the party to Seaton. The return journey will be made from Seaton at 9.35, reaching Exeter at 10.43 P.M.

THE CARLISLE ROSE SHOW, we are informed, will be held on Tuesday, July 17, not July 18, as previously arranged.

ABIES NOBILIS.—Mr. NICHOLSON kindly sends us male flowers of a glaucous form of this species growing at Westonbirt. The male flowers are slightly stalked, about 25 mill. \times 6 mill., the scales roundish, obtusely pointed, of a rich crimson colour, so that the tree must have been strikingly beautiful.

THE BOTANICAL EXCHANGE CLUB.—The report of the distributor for 1898 has been recently published. The members of the club interchange dried specimens, and append comments on some of the more critical plants. Of *Potamogeton Drucei*, it is stated that it affords a sight not easily to be forgotten, as it occurs in the shallow and clear water of the Loddon, where the flickering lights illumine the delicate lace-like foliage of the submerged leaves. It has been referred to *P. fluitans*, or to a hybrid between *P. nutans* \times *alpinus*.

THE PLANT DOCTOR.—The Royal Horticultural Society seems rolling in wealth, or very anxious to spend what it has—a correspondent says he knows an opening, viz., to provide the sinews for war to some plant-disease man, and send him to see on the spot what disease really looks like. The postal box is apt to mislead. We certainly think the time has arrived when the Royal Horticultural Society, or someone, should give an adequate salary to a competent plant doctor whose whole time should be devoted to the work. We are only editors, and have no time for the necessary research and cultivation, but we are swamped with enquiries and specimens.

"THE ALPINE FLORA."—The seventh edition of the coloured vade-mecum of the *Alpine Flora*, entirely re-written and greatly enlarged, of a book containing 207 coloured, and ten uncoloured pictures of alpine flowers. The text, which consists of brief descriptions of the plants shown, is in English, French, and German. The authors of the book are L. SCHRÖTER and Professor Dr. C. SCHRÖTER of Zurich, and they are to be congratulated upon bringing out a book comprehensible to

tourists of three nationalities, and we must not be too hard on the occasional faults in idiom made when writing the languages of countries foreign to them. Being of handy size, this companion to the *Alpine Flora* will be found exceedingly useful to travellers whose limited luggage debars them from bulkier tomes. The descriptions, it is needless to say, are correct, and the pictures also, the latter being pretty but not exaggerated representations of the genus found on the mountains. The publisher of the book is ALBERT RAUSTEIN of Zurich, but it may be had from any foreign bookseller.

AGRICULTURAL RETURNS FOR 1899.—From these returns we learn that the acreage occupied by orchards show a slight increase—the greatest amount of which being found in Kent and Worcestershire. There can be no doubt that fruit cultivation is extending, though perhaps with halting steps, and this in the face of the increased imports from all the fruit-growing colonies and foreign countries. It pays—that is the test and the incentive to increased acreage. Turning now to Wheat, a large falling off in the acreage devoted to that cereal has to be noted, due to the exceptionally low prices of the year, and as noted by us from week to week. The average price per quarter in 1898 was 34s., and fell to 25s. 8d. in the last year; and here it may be observed that, with the exception of 1894 and 1895, this was the lowest figure reached during 129 years. In the matter of Wheat production, the total was less by nearly a million quarters than in 1898, but was considerably more than recorded in any year since 1891, excepting 1898. Last year's yield per acre was also the best average recorded. The entire area of cultivated land which has, with but few exceptions, declined every year since 1872, was a little less last year than in 1896—consequently it was less than any year on record. On the whole, and eliminating fruit culture from consideration, the figures in the returns form a striking evidence of existing agricultural depression. But it may be of interest to the British farmer to learn that the area of winter Wheat in the United States is less this year by 3,563,000 acres—or 11.8 per cent. than in the preceding year.

FRENCH RANUNCULUS.—"The Ranunculuses of the Dutch bulb trade may be properly divided into two large groups, according to their origin, some having originated from *Ranunculus asiaticus*, and others from *Ranunculus africanus*. The last mentioned includes the varieties which are known in the trade as Turban Ranunculus; while to *R. asiaticus* belong the Scotch and French, as well as the Persian varieties. For many centuries the Ranunculuses have been favourite garden flowers. As early as the year 1650, Sultan MAHOMET IV. had the garden of the Serail planted with Ranunculus, which his Grand Vizier had ordered, with many other kinds of plants, from their native places in the vicinity of Candia, Cyprus, Aleppo, Rhodes, and Damascus. From among all these different plants, the Sultan gave the preference to the Ranunculuses, and their transitory splendour was finally preserved for us by the brush of an artist. For many years MAHOMET IV. kept the Ranunculus for himself alone, like the slaves in his harem, but at last through the ambassadors of the different European courts, they became known in Western Europe. With how much preference they were there cultivated is best shown from the voluminous *Traité des Renoncules* of PATER D'ALDENZ, which appeared in the middle of the eighteenth century, and from which a still more extensive translation has been published in Germany. The Ranunculuses seemed to thrive in Dutch soil, and the culture was soon carried on energetically and on a large scale. An improved race of Persian Ranunculus originated in France, to which the name of *R. asiaticus superbissimus* was given; they may be distinguished from the Persian varieties by their larger, looser,

and sometimes less double instead of fully double flowers; and they also present much richer variations of colour." *Florilegium Haarlemense*, January, 1900.

EREMURUS.—The stately beauty of *Eremurus* was strikingly shown at the Drill Hall on Tuesday, by Messrs. JAS. VEITCH & SONS. This valuable hardy plant is by no means sufficiently well known yet, and it has never been staged at an exhibition in this country in such quantity or excellence.

IRELAND.

FORESTRY.

Now that the new Board of Agriculture for this country has superseded the Congested Districts Board in the management of the agricultural cares of our community, with much greater freedom to carry out any suggestion with a view to improvement, the task of the replanting of some counties on the westward coast is one imperative on the Executive Council, as the older board had purchased somewhere in the nineties, namely, 1892, a tract of country embracing something like 900 and odd acres, at Knockboy, county Galway; in 1892 and 1893 they managed to plant at least 500 acres, the varieties at first being experimental. The kinds included the following timber-trees:—Ash, Elm, Beech, Spruce, Silver Fir, Elder, Larch, Sycamore, Poplar, and Scotch Fir. They were not long planted when decay set in, the Firs showing the first signs of decline, especially *Abies pectinata*, or Silver Fir. The foresters, in their report on the trees at Knockboy, say that hardwoods and deciduous trees, with very few exceptions, do not thrive upon this site. They speak favourably of Scotch Fir, also Spruce. In dealing with the climate of the west coast, the harsh winds which sweep the country during the earlier part of the year, rendering the labour of planting during this period a task of temerity, as many kinds do not survive, and suggest that later planting should be less productive of loss of the young trees. There was a vague impression in the minds of the Board that local nursery stock would be more beneficial, so that in the year of 1895, this idea assumed a practical shape, namely, they inaugurated a nursery on the site of Knockboy; it extended to 4 acres. The main stock was one-year-old seedlings, whilst the seeds of the varieties which had proved themselves to withstand the Atlantic winds, were also planted. How far their venture was a success it is impossible to speak, as the Board never issued any report in connection thereof. A forecast would sound something like failure. The great question which will determine the use of laying down trees so far as this country is concerned, namely, its meteorological effect. At present there is a vague impression in our cultivators' minds that the conditions of growth have been seriously interfered with when our forests were cut down; and until this aspect of the question is scientifically treated, its influence at least made fairly clear, the task of planting trees in the most suitable places throughout the country, in order that the fullest effects shall accrue, will remain in the background, or if any move does take place, it may not bear the stamp of thoroughness. To plant timber for profit does not appeal to our country, as its undulating surface is better fitted for other forms of vegetation.

There is one thing regarding forestry operations which should be carried out, that is, the mountainous parts such as the mountains around the metropolis, in some parts of Wicklow, although it is fairly well covered with trees; some places along the south coast as Waterford, and on the west coast Kerry and Galway should be extensively planted; also Donegal, and portions of Down near the south, among the Mourne mountains, using the Scotch Fir in the most exposed places, and in the shelter thus formed the common Spruce, Birch, and Sycamore. Some Conifers might be planted in the flat uplands, and if sheltered, Larch will thrive; whilst Poplars, Willows might be cultivated in the damper situations; and on sandy soils of a shifting nature, *Pinus pinaster* could be utilised with advantage. If the above course were adopted, and the facts following from such a source be noted, it would form a secure basis for future work. A. O'Neill.

BROOM HOUSE, FULHAM.

[SUPPLEMENTARY ILLUSTRATION.]

THIS, the residence of Miss C. A. Sullivan, and situated on the banks of the Thames about 3½ miles by road from Hyde Park Corner, has for its surroundings one of the best gardens to be found in the older suburbs of the metropolis. Vegetation both arboreal and other is very luxuriant and healthy, and shows scarcely any of the effects usually associated with close proximity to the great city, or of urban fog. The great purple Beech (figured in *Gardeners' Chronicle*, p. 305, October 22, 1898), the Horse-Chestnuts, deciduous Cypress, the evergreen Oaks, Tulip-tree, aged Rhododendrons and Azaleas, Cedars of Lebanon, a Liquidambar, are just as healthy and fine in proportions to-day as we have always known them. Ferns and rock-plants, bulbs of all sorts, Iris in variety, and bog-plants flourish as if only the purest country air surrounded them, and the turf is soft and yielding, and moreover it shows great care on the part of Mr. Wilson, the gardener, in being free from weeds, and well kept.

We gave in our issue for November 12, 1898, a full account of this pretty garden and grounds of 10 acres, and of the garden by the mansion as it was planted at that time, so that we need only refer our readers to that notice in order that they may ascertain with what description of plants the beds depicted in the view were, and are, always filled. The foreground of the view contains a fine large shrub, 5 feet in diameter, and height of *Choisya ternata*; a red-flowering Currant, a clump of *Lilium auratum*, a Silver Queen Holly, and a *Thuia orientalis*.

In the spring months this front-garden, which faces south, is made gay with early and late-flowering Tulips, Aubrietias, Iris, and Wallflowers, to be succeeded by *Pyrethrum roseum* in variety, Lupins, Poppies in profusion, Ixias, Tritonias, and a host of others; the floral display knowing no break till winter begins. The feature of the flora at the present season are the hardy Azaleas, mostly Ghent varieties; and *Rhododendron hybridum*, which are disposed in large masses by themselves. Doubtless the nearness of the water-level to the surface, and the constant circulation of air due to the proximity of the river, are the chief reason of the healthiness and vigour of these plants.

Among other plants which make a good display in their season may be mentioned the fine, large, white-flowered Madame George Bruant Rose, which is allowed to attain to its full size as a bush, namely 8 feet and 6 feet in diameter, making it an ideal centrepiece for large Rose-beds; and Turner's Crimson Rambler, which here is growing luxuriantly, and promising well for bloom trained over the upturned root of a great tree. *Althea frutex*, of which several large examples were remarked, are late in the summer loaded with bloom.

A small Rose-house has been erected on a part of an old orchard, and efforts are being made to get the walls and roof covered with Roses as quickly as possible, but unfortunately the plants are much crippled by visitations of mildew, which curious to note, gives no trouble in other parts of the garden.

Bedding-out is going on apace, and by the time that this note appears in print it will practically be completed. Old favourite-flowering plants still keep their wonted places in the formal parterres, and we noted *Antirrhinums*, *Violas*, *Zinnias*, *Verbenas*, *Pelargoniums*, *Calceolarias*, *Lobelias*, and *Petunias*, as materials for planting the beds, many of which are oblongs of 5 feet by 2½ feet.

In a warm conservatory attached to the mansion there were arranged plants of *Vanda tricolor*, *Dendrobium formosum*, the still uncommon *Crossandra infundibuliformis*, with long terminal spikes of orange-red flowers; a big plant of *Eucharis grandiflora*, whose roots are at almost all seasons immersed to a certain extent in water, which blooms very well several times a year, and shows every sign of good health; and some plants of *Plumbago rosea*, which after flowering last year, were rested, and slightly cut back, and are at the present date affording plenty of blooms.

THE WEATHER IN WEST HERTS.

IN the early part of the week the weather remained cold, but during the last three days there has been a welcome change to warmer conditions. In the same three days the temperature of the ground at 2 feet deep has risen about 2°, and at 1 foot deep as much as 5°. During the partial eclipse of the sun on the 28th ult. there was no marked fall in the temperature of the air, but its duration was clearly indicated on the sunshine card by the narrowing of the trace, and its decreased intensity of burning. Less than ½ inch of rain fell during the week, and no measurable quantity of rain-water came through either percolation gauge. The first Roses to flower in the open ground in my garden were the following single-flowered varieties, viz., *Rosa altaica* on the 3rd, or four days later than last year; and the Scotch Burnet Rose on the 4th, or two days later than last year.

MAY.

The first week proved warm, but during the rest of the month there occurred very few unseasonably warm days or nights. Taken as a whole, this was an unusually cold May. Nevertheless during the past fifteen years there have been six other Mays in which the mean temperature was lower. Moreover in eight Mays during that period, greater cold was registered by the exposed thermometer than on the coldest nights of the same month this year. Rain fell on twelve days, but the total measurement was only about half the average quantity for the month. No rain-water whatever came through the percolation gauge on which short grass is growing, and less than a quarter of a gallon through the uncropped gauge. Both gauges are 1 yard square. The sun shone on an average for five and a half hours a day, or about half an hour a day less than the May average. The winds were as a rule of moderate strength, and for 309 hours, or nearly thirteen days, came from some point between north and east.

THE SPRING.

This was the coldest spring since that of 1891, and only once before (1893) in the previous forty-four years have the same three months been as dry. It was also rather a sunless spring. *E. M., Berkhamsted, June 5.*

DENMARK.

THE TULIP EXHIBITION AT COPENHAGEN.

THE Ladies Club at Copenhagen lately arranged a charming exhibition of late-flowering Tulips, which was very successful. Many English and Scotch travellers visited it, and remarked that the English Tulips, as well as the Dutch ones, had arrived in good condition. A special department was made of the finest types of Barr & Son's well-known collections. *Tulipa viridiflora* was excellent, as were several of the more rare dark-flowering Tulips.

From Holland, the best Tulips came from M. Krelage, of Haarlem; strikingly fine flowers of *La Tulipe Noire*, and many other fine Darwin Tulips, &c., were sent, and much admired.

The club rooms and neighbouring exhibition rooms were finely decorated with carpets, pictures, copper-ware, &c., old Dutch faience, china, and many other decorative objects. A young lady presided in the Dutch room, dressed in Dutch costume, and acted as a cicerone in her department.

The exhibition was visited by the beloved Royal Family, and was very successful. Professor C. Grieslund lectured twice on Tulips; and Professor Carl Hansen prepared for the occasion an illustrated treatise on the interesting history of the Tulips, &c.

The Ladies' Club has in former years arranged successful exhibitions of Orchids and other flowers. A Ladies' Club-Palace will, it is hoped, be the result of the Ladies' energy. Horticulture is advancing at Copenhagen, and the ladies are among the most zealous promoters of it. *C. H.*

NOTICES OF BOOKS.

THE NATURE AND WORK OF PLANTS: AN INTRODUCTION TO THE STUDY OF BOTANY. By D. T. Macdonald, Ph.D., Director of the Laboratories, New York Botanical Garden. (Macmillan & Co.)

FROM the United States we are now frequently receiving works on elementary botany, which are remarkable for their freshness and novelty of treatment. One of the best is that whose title is given above. The plant is an engine, says the author, and forthwith he sets his pupils to work to demonstrate the truth of the proposition by pulling it to pieces and investigating the mode of action of each piece separately and conjointly. The teacher gives his pupils a few simple directions, and then leaves them to work out the problems for themselves. At the end of the exercise, if they have any brains at all, they must themselves arrive at the conclusion the teacher desired them to do.

When a lad has worked through a book like this, he will not only have a good general knowledge of the physiology of plants, but he will have acquired a mental training or discipline, the value of which in any career is beyond computation. One serious defect is the absence of any chapter on the genetic relationship or classification of plants. The subject of the variation of plants is also almost entirely omitted. In spite of these deficiencies we may thoroughly commend this little treatise to the botanical student.

ORNAMENTAL SHRUBS. By Lucius Davis, New York and London. (G. P. Putnam's Sons.)

THIS is a handsome quarto volume devoted to the description of shrubs suitable for garden, lawn, and park-planting in the United States. The book is not written for botanists, but for amateurs, and much attention has been given to variations which though of great importance to horticulturists are, or were till lately, neglected by systematic botanists. We do not see that any particular system of arrangement is followed, but as there is an index this defect is not of so great consequence as it otherwise would have been. Brief descriptions for horticultural purposes are given of the principal shrubs, together with an enumeration of the principal varieties. Thus, under *Deutzia* we find a mention of "Pride of Rochester," sent out by Messrs. Ellwanger & Barry, as an off-shoot (sport) of the double-flowered form of *D. crenata*. "Though but a comparatively recent introduction, its merits are such that it has already become widely and highly appreciated. It carries large, double, white flowers, some parts of the petals being slightly tinted with scarlet or rose, and it is said to excel all the older sorts in size and flower, length of panicle, profuseness of bloom, and vigorous habit. It comes into flower soon after the gracilis, and a week or two in advance of most of the other forms of *Deutzia*."

The representation of *Kerria japonica*, so-called at p. 313, is probably a *Diervilla*, which has been misplaced. The book is good as far as it goes, and so valuable for the description of numerous varieties, that we could wish the index had been fuller. Of course, it is for the most part available for use in this country, as well as in the States, and those interested in ornamental shrubs will do well to possess themselves of this useful book.

THE AMATEUR'S PRACTICAL GARDEN BOOK. CONTAINING THE SIMPLEST DIRECTIONS FOR THE GROWING OF THE COMMONEST THINGS ABOUT THE HOUSE AND GARDEN. By C. E. Hunn and L. H. Bailey. (Macmillan & Co.)

BUT that the varieties recommended for use are different, this book might well be adopted by the English gardener. It is, in fact, written specially for the gardeners of the more temperate States of the Union; but with the necessary adaptations, it is

well suited for this country. The selection of subjects seems to be very judicious, and the arrangement is alphabetical. To show the way in which the subjects are treated, we take these particulars from the article, Apple:—"The land on which an orchard is to be planted should have been in cultivation at least two years previous to setting the trees, and be in a fine physical condition. Dig the hole broad and deep enough to take in all the roots left after pruning off the bruised ends caused by digging up the tree, and trim back the branches at least two-thirds, making a smooth cut. Set the trunk in the centre of the hole, and sift the fine dirt down through the roots, slightly lifting the tree once or twice, in order that the fine soil may

BULLETIN DE LA SOCIÉTÉ FRANÇAISE D'HORTICULTURE DE LONDRES. (66, Long Acre, London, W.C.)

THE *Annual Bulletin*, a volume of 150 pages, again makes its appearance, with the result that the friends and supporters of the Society can congratulate it upon its continued prosperity and usefulness. The list of membership seems to grow apace, and the financial resources must be in every way encouraging to the executive. The frontispiece to the present issue is an excellent portrait of one of the Society's English supporters, Mr. George Nicholson, of Kew, which is accompanied by an appreciative biographical notice from the pen of Mr. George Schneider, the genial President of the

the resources of the average student. It would seem on the one hand the wiser course to omit all such details that are at present outside practical limitations. On the other hand, it is desirable to pay special attention to those departments and to those plants with which the pupil will daily be brought in contact. In one special respect Mr. Percival's book is "up to date," and that is, in the insertion of numerous exercises and experiments to be carried out by the pupil for a definite purpose. While some books are made to read or to consult, and others are intended for laboratory use only, Professor Percival's book fulfils both purposes. His practical exercises are intercalated between the paragraphs of didactic



FIG. 119.—PORTION OF THE ROCK-GARDEN EXHIBITED BY THE GUILDFORD HARDY PLANT COMPANY AT THE TEMPLE SHOW.

(See Report of the Temple Show in our issue for May 26, 1900, p. 4 of Supplement.)

settle under the roots, making congenial soil for the new roots to run through. Fill in over the roots, gradually firming the soil above with the feet. When the hole is full, firm the soil around the trunk to prevent whipping by the wind, leaving the surface level. If the trees are set in the fall, a slight earthing-up to the trunk may be beneficial in certain soils, and if set in a dry spring a mulch of straw or grass will benefit them. Two or three-year old trees (usually the latter) are the most desirable for planting in home grounds. Commercial orchards are often planted exclusively with two-year olds. In orchard cultivation Apple-trees are usually planted 35 to 40 feet apart each way. In home grounds they may be planted somewhat closer than this." The book is worthy the notice of English gardeners.

Society. As is usual, a portion of the volume is devoted to reports of the Society's monthly meetings, the annual dinner, and the catalogue of the library. Then follow a series of papers on various horticultural subjects of interest, which have been contributed by the members.

AGRICULTURAL BOTANY: THEORETICAL AND PRACTICAL. By John Percival, M.A. (Duckworth.)

IN compiling a book of this character, intended for agriculturists or horticulturists, there is always a difficulty in knowing what to insert and what to omit. If the manual is to be brought up to date, there must be inserted many matters of no direct practical importance, and beyond the capacity and

text. We are not sure whether it would not be more convenient to have these practical exercises relegated to an appendix, and simply referred to in the text; but that is a matter to be determined by the Professor himself. The first part is devoted to external morphology, the second to minute anatomy, comparatively little space being accorded to this department. The physiology of plants is treated at greater length, and is one of the most satisfactory portions of the book. We are pleased to see more attention paid to the subject of classification than is general in most modern text-books, though we are startled to begin the series with Cannabaceæ, a new name, probably including the Cannabinaceæ.

The botany of the Hop is given at greater length than we remember to have seen in similar works.

The Chenopods are represented by detailed accounts of the Mangel Wurzel. Cruciferae come next, affording the author the opportunity of dilating on the variations of Cabbages, Swedes, Turnips, and other forms of Brassica. Rosaceae, Leguminosae, Umbelliferae, and other orders remarkable for the number of useful plants that they contain, are treated in like manner, so that we have a full account of the grasses, including the cereals and the several pasture-grasses. Special attention is given to weeds, as befits an agricultural text-book. From the details given as to the purity and germinative capacity of seeds, it would seem as if considerable improvement had been effected of late years. The author incidentally alludes to the fact that certain seed firms (most?) now refuse to give any guarantee of the quality of their seed, and he is severe upon them in consequence, but he overlooks the fact that the best guarantee is afforded by the reputation of the firm. For our own parts we should prefer to purchase without guarantee from an established firm with a reputation to lose, than from a less well known firm with an elaborate guarantee, and we think those who have witnessed the care with which the great houses grow, select, and clean their seeds, would now be of the same opinion. The work closes with chapters on the injurious fungi and bacteria. A copious index is added, so that the book may be thoroughly commended to the class of students for whose use it has been mainly prepared.

APPLE ELECTION.

It having occurred to me that an election of Apples would prove useful, I addressed a circular-letter to all the best authorities I could think of amongst nurserymen, market-growers, and gardeners, in all parts of the country, choosing, as far as possible, those who had practical knowledge gained by selling either fruit or trees. The letter will speak for itself. It was as follows:—

"Seeing how very desirable a thing it would be in the interests of everyone connected with fruit-growing, nurserymen, fruit-growers, and also the public, that the number of varieties of the various fruits should be reduced, and a lead given to those of proved merit, I am getting together the views of the leading experts upon the subject of Apples."

The following selections to be made with a view of combining as far as possible quality with free bearing. All should be essentially market Apples, but not the so-called "market Apples," whose only recommendation is appearance; for it is not with these that we can hope to hold our own against Apples from other countries:—

- Best six cooking Apples for Standards.
- " three dessert "
- " twelve cooking Apples for Bushes.
- " six dessert Apples for Bushes."

To this letter I received some thirty-two replies giving the information sought, three saying that the task was beyond the powers of the writers; and one (which ought to be sent to a museum of antiquities), in which the writer says that he has been many years collecting the information I asked for, and that it was too valuable to give away, but he should be pleased to see the result of my enquiries in the press. The italics are mine. I beg here to thank those who gave themselves the trouble to reply to my letter, and I trust that the information they have so kindly given may be of use to my other correspondents. I am sure it will be to many of the reading public.

I think it will be wise that I should point out that although the replies given come from all parts of the country, the bulk of them are written from the fruit-growing districts of the south and west, so that some Apples most suitable for the North and Midlands do not stand quite so forward in the list as they might have done had the votes been more evenly divided. Setting this aside, it will readily be seen that certain varieties take the lead in all localities, as, for instance, Lane's Prince

Albert, and Cox's Orange, which, for bush culture, have each secured thirty-one votes out of thirty-two. A remarkable feature of this election is the way such comparatively new varieties as Newton Wonder and Bramley's have come to the front. It took fifty years for Cox's Orange to gain the favour of cultivators, but things move more quickly to-day; still I am inclined to think that such Apples as Alfriston, and Beauty of Kent, which are of finest quality and also productive, deserve more notice than they have received. I am not responsible for my correspondents' selections, and whilst some class Blenheim as a table fruit, others call it a culinary Apple, and some of the most practical name it under both headings as a desirable variety. I think it only fair to say that Worcester would have had more votes but for my remark about quality, indeed the votes given are recorded, despite the quality condition. Lord Suffield and Lord Grosvenor detract the one from the other to some extent, as most growers prefer Suffield where it will grow, and where it will not they take Grosvenor.

SIX STANDARDS FOR COOKING.

	Votes.
Dumelow's Seedling ...	21
Warner's King ...	18
Bramley's Seedling ...	18
Newton Wonder ...	17
Ecklinville ...	13
Lord Grosvenor ...	10
Prince Albert ...	10
Blenheim Orange ...	7
Duchess of Oldenburg ...	6
Keswick Codlin ...	6
Lord Derby ...	6
Annie Elizabeth ...	6
New Northern Greening ...	5

Alfriston, Golden Noble, Beauty of Kent, New Hawthornden, Grenadier, and Bismarck, 4 each. Others 1 and 2 each.

THREE STANDARDS FOR DESSERT.

King of Pippins ...	25
Cox's Orange Pippin ...	21
Worcester Pearmain ...	14
Blenheim Orange Pippin ...	11
Quarrenden ...	8
Irish Peach ...	3

Sturmer Pippin, Allington Pippin, Oldenburg, Ribston Pippin, and Adams' Pearmain, 2 each. Others 1 each.

TWELVE BUSHES FOR COOKING.

Prince Albert ...	31
Stirling Castle ...	28
Ecklinville ...	22
Bismarck ...	22
Newton Wonder ...	20
Bramley's Seedling ...	18
Potts' Seedling ...	18
Lord Grosvenor ...	18
Warner's King ...	16
Grenadier ...	15
New Hawthornden ...	13
Duchess of Oldenburg ...	13
Lord Derby ...	11
Alfriston ...	11
Golden Noble ...	11
Lord Suffield ...	9
Frogmore Prolific ...	9
Dumelow's ...	9
Golden Spire ...	8
Peargood's Nonsuch ...	7
Beauty of Kent ...	6

Stone's Pippin, New Northern Greening, Annie Elizabeth, Cox's Pomona, and Gascoyne's, 5 each; 30 others, smaller number of votes, chiefly 1 and 2 each.

SIX BUSHES FOR TABLE.

Cox's Orange Pippin ...	31
King of Pippins ...	23
Worcester Pearmain ...	20
Lady Sudeley ...	13
Ribston Pippin ...	10
Quarrenden ...	9
Allington Pippin (New) ...	8
Claygate Pearmain ...	6
Irish Peach ...	6
Sturmer Pippin ...	6
Beauty of Bath ...	6
Mr. Gladstone ...	5
American Mother ...	4
Duchess of Oldenburg ...	4

Gascoyne's Scarlet Pearmain, Scarlet Nonpareil, Adams' Pearmain, Blenheim Orange Pippin, and Court Pendu Plat, three each. Twenty-eight others received one or two votes.

I regret that a goodly number of those to whom I addressed questions (twenty-four out of sixty) did not see the importance of the matter or had not time to reply; but I think we may take it for granted that the tables given above represent quite the best of the knowledge obtainable in this country, and if planters take the first twelve, six, or three, in each list as a guide they will not be far wrong.

As fruit salesmen have a considerable interest in the question under consideration, I addressed some twenty of the leading men in this line in all parts of the country who handle Apples, asking them to give the twelve best cooking Apples and six best dessert (British grown) that sold most readily, and gave most satisfaction to buyers and best returns to growers. Only six replied; the others, probably dreading to disclose any trade secret, were discreetly silent.

COOKING APPLES.

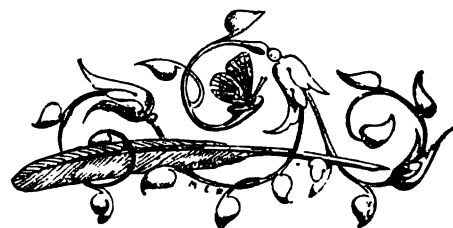
	Votes.
Warner's King ...	6
Lord Suffield ...	5
Lord Derby ...	4
Dumelow's Seedling ...	4
Stone's ...	4
Lord Grosvenor ...	3
Bramley ...	3
Ecklinville ...	3
Blenheim Orange ...	3
Prince Albert ...	3
Beauty of Kent and Keswick, each ...	2

TABLE APPLES.

Worcester Pearmain ...	6
Cox's Orange Pippin ...	5
Blenheim Orange Pippin ...	4
King of Pippins ...	3
Ribston Pippin ...	3
Quarrenden ...	3
Ingestre and Duchess Favourite, each ...	2

I trust that the importance of the subject will excuse the length of this communication. A. H. Pearson, *Loddham, Notts, June, 1900.*

[The reader may also be referred to the exhaustive report of the Chiswick Apple Congress in the *Journal of the Royal Hort. Society* in 1888. Ed.]



HOME CORRESPONDENCE.

PAEONIA CORALLINA.—Although Sir J. D. Hooker regards this plant as "introduced" into Steep Holme, I would venture to suggest that it is just possible that it may be a member of that small group of south European plants which have found a foothold in S.W. England. They appear to have reached Normandy from the Riviera, and thence by the Channel Islands to S.W. and W. coast of England, and a few the S.E. of Ireland. Forbes called them "Armoricana;" Watson, "Atlantic;" I take them, however, to be mostly Mediterranean. Of course, this diffusion westwards took place when land occupied the site of the English Channel; so that it is quite possible that this Paeony, which is a Mediterranean species, travelled across in company of such plants as *Adiantum capillus-veneris*, *Sibthorpia europaea*, *Raphanus maritimus*, *Polycarpon tetraphyllum*, *Lagurus ovatus*, and *Ranunculus ophioglossifolius*, which stopped behind in Jersey—it grows by one rivulet in Malta. This "flora" may be compared with another, limited to the S.W. mountains of Ireland, which has six species of *Saxifraga*, including *Loudon Pride* and *S. Geum*, *Erica mediterranea*, *Menziesia polifolia*, and *Arbutus Unedo*, the Strawberry-tree. Their nearest continental habitat is the Asturian mountains of Spain. It is presumable that they have become isolated by the formation of the English Channel. *George Henslow.*

HOLLYHOCKS.—It strikes me as being odd to read of suggestions as to the propagation of Hollyhocks, by root-grafting now, especially as it has so long been shown how indifferently plants that are thus increased, or by means of cuttings, or side shoots, battle with fungoid attacks through lack of stamina. I had thought that propagation of these plants by other means than seed was almost a thing of the past. But apart from the difficulties which surround Hollyhock culture, arising from the Hollyhock-rust, when plants are increased by division or by cuttings, &c., there is the undoubted fact that few plants propagated by seed agency reproduce themselves or the characteristics of the parents, so admirably as do Hollyhocks, and that being so it is difficult to understand what is to be gained by methods of propagation that seem chiefly to result in physical deterioration. Probably for one Hollyhock plant produced by cutting or division, fifty are produced from seed, possibly even hundreds. But easily as stout sturdy plants are thus produced, yet how few Hollyhocks

ideal was then body and form, quite irrespective of grace or beauty. Hence, spikes of even the very finest double Hollyhocks bore great resemblance to the stems of a well-furnished Brussels Sprout, but excelled in the richer coloration. I do not think much has been lost to gardens in the decadence of such flower-spikes, but ordinary seed strains of double Hollyhocks, because the product is much less stiff and formal, and well raised plants, when strong, usually have several main-stems, and side shoots or branches have undoubted beauty that is worthy of place in any garden. Hollyhock seed is commonly sown too late outdoors. The best average time is in May, as plants raised from such a sowing, lifted carefully and dibbled out where to bloom, in August become very strong, giving fine tufts of leaves in the borders for the winter, and send up several strong flowering-stems in the following summer. It is now well known that seed strains almost entirely reproduce the parent flower, and certainly, if differing at all in colouring, the character of the flowers remain the

Zinnias, Chrysanthemums, and even Tobacco-plants are treated in like manner. By inverted flower-pots many thousands of earwigs are secured, but the amazing rapidity in which they breed leads me to concur with your correspondent that they must be particularly devoted to their young. My experience is, that these insects dislike wet, and they will usually be found to be less numerous in heavy retentive soils than in soils of a light, warm nature. I have found that if young plants are heavily syringed or watered overhead after dusk, it militates against their raid. Agreed that they prey on insect life to a certain extent, the good thus done is greatly overbalanced by the damage they do. Were gardeners to tolerate them, they would be encouraging their enemies. *Walter H. Aggett, Bermondsey, S.E.*

PRIMROSES.—In his paper on "Primroses," at p. 325. Mr. Lindsay mentions that a good strain of these may now be obtained from seed. I should like to know from what source, unless he is, as so



FIG. 120.—GROUP OF MILTONIA VEXILLARIA EXHIBITED AT THE TEMPLE SHOW BY M. LINDEN.

(See Report of the Temple Show in issue for May 26, 1900, p. 1 of Supplement.)

are seen in gardens. But even seedlings are subject to attack from rust; hence the grand old Hollyhock has, as a garden decorative plant, been largely tabooed. There are more Hollyhocks found in cottage gardens generally than in more pretentious gardens, but then these are chiefly single ones, of which there are many of singular beauty; indeed, the colours found in the singles far excel in variety and beauty any that are to be found in the doubles. The former have two faults, which pinching might materially remedy: they grow too tall, and do not carry at any one time flowers in sufficient profuseness. Were the stems when four feet in height hard-pinched or topped, the result would be the breaking out of several side branches, and thus the plants would assume a far more bushy and floriferous character. No doubt the somewhat too rapid fading or falling of single Hollyhock flowers is due to the free fertilisation of them by insects, for they are rich in pollen; but still there is a charm or beauty about the singles that even the finest of the doubles do not display. The aim of the Hollyhock florist had been to produce very solid, or massive flowers, rounded, and densely set on the stems; to aim at which was natural enough, because the florist's

same. Single forms, no doubt, will bear great improvement, but to attempt doubling them would be a mistake. Because these are so accessible to insects, they naturally show from seed much more variability than the doubles do. They offer, in any case, a fine field for the labours of the florist who wishes to improve and not destroy. *A. D.*

THE EARWIG.—Mr. Wesche has defended this terribly destructive insect, and it is interesting to know that it has some redeeming qualities. Analysis has proved that earwigs eat insect life, but I am afraid there are a vast number of vegetarians in this family, and if not strictly so, green food plays an important part in their diet. Replying to Mr. Wesche's question, I have never observed them actually eating the plants, but at dark have discovered Dahlias and other plants literally smothered with them. Get very close to the plants to be inspected, then turn on a bull's-eye lantern, and you will see them drop off simultaneously and bury themselves in the ground with despatch. To dispel any doubt as to their guilt, the plants inspected were planted that day, but the army had carefully removed every vestige of growth, leaving the plant to make a fresh start from the base. Verbenas,

many people do, confounding border Polyanthes with Primroses, which I do not. The blue strain, even already under constant seeding and cultivation, is getting Polyanthus in form, is about the only single Primrose strain now obtainable from seed. But as he a little lower down refers to some true Primroses that have existed, though long since passed away, under name, it is evident that true Primroses and not Polyanthes are meant. *A. D.*

THE HARDY FRUIT PROSPECTS.—In this district the prospect of an abundant fruit crop are very cheering, in spite of the very unfavourable weather experienced during the last two months. The frosts, however, were less severe during that time than was the case in 1899, with the result that all kinds are set well. The bloom was later than last year: for example, Plums and Pears in the open were, in 1899, in full bloom during the third week of April; this season the flowers of the Plum were not fully open till the first week in May, while the Pears were a week later than that. Apples were from a week to ten days later than usual. Pears, Plums, and Damsons are well set with fruits, and the earlier flowering varieties of Apples equally so, whilst late varieties show well;

Gooseberries and Currants are heavily set. The trusses of Strawberries are thrown high over the crown of foliage, and the plants give great promise. Raspberries also show well for fruit: Filberts and Cobnuts show an abundance of male catkins and female flowers. Walnuts have also been well stocked with flowers; Peaches, Nectarines, and Apricots have a fair set. Caterpillars and aphids have not been very numerous up to the present, June 1. Queen Wasps have been seen in great numbers, but they were strong on the wing, and therefore difficult to catch. *Geo. Woodgate, Rolleston Hall Gardens, Burton-on-Trent.*

LILIES FOR THE GARDEN.—I regret that the Lilies to which your correspondent, "W. T.," refers on p. 352, viz., *Lilium auratum*, *L. Humboldtii*, and the extremely beautiful and richly fragrant *L. Washingtonianum*, have not been found so successful elsewhere as they have been, unquestionably, in my own garden, where they have been grown under ordinary conditions of climate and soil. Those who have not at first succeeded with the culture of the Washington Lily, I would strongly advise to give it another trial in a different position. It did not at first succeed with me; now it is one of the most reliable Lilies in my garden, quite as worthy of confidence as *Lilium Humboldtii* (which, however, generally takes two years to become established), or *Lilium monadelphum* var. *Szovitzianum*, which grows vigorously and flowers profusely here. The only *L. auratum* I cannot grow strongly or effectively is the variety entitled *rubro-vittatum*. *Lilium auratum platyphyllum* grows most vigorously here, also in the gardens at Logan House, the residence of the leading proprietor in this parish, Mr. Kenneth McDonall, who is devoted to horticulture, and is also an enthusiastic arboriculturist. My nearest neighbour, Mr. John Hill, a mechanic, with strong horticultural tendencies, grows *Lilium auratum* and *L. longiflorum* with gratifying success in his miniature garden. He is now essaying the culture with offsets taken from my collection of the great Himalayan *Lilium giganteum*. *David R. Williamson, Wigtownshire.*

A HARDY HIPPEASTRUM.—Twenty years ago the late Mr. Tyerman sent me from his garden in Cornwall a bulb he named *Habranthus pratensis*, which he told me would be hardy in Cheshire if planted deep. I accordingly planted it deep under a south wall, and did not know for many years that it had ever grown. However, two years ago I observed a handsome scarlet *Amaryllis* flower in the place where I then recollected I had planted the *Habranthus*. Last year it flowered again, both times in May; and now, after a trying and severe winter, and in spite of late spring-frosts, it is again flowering for the third year in succession. I find it answers to the description of *Hippeastrum pratense*, and is a native of Chili. The soil of my garden is by no means favourable for tender bulbs, and I think there are few English gardens where this handsome flower might not be a valuable addition to the few open-air ornaments of the border in May. I see it appeared in Dutch catalogues. *C. Wolley Dod, Edge Hall, June 6.*

MUSA ENSETE.—In the penultimate number of the *Gardeners' Chronicle* there was a question as to whether *Musa Ensete* suckers; and I think that my experience in the tropics may possibly be of interest. I had many plants of *Musa Ensete* in my garden in Guiana which lived out their lives without bearing suckers; but I had two others which I had occasion to remove after they were half-grown plants to a distance of many days' journey, for that purpose taking them up, cutting off all the leaves, and carrying them as mere "stools." (By the way, is that a West Indian word, or is it good gardeners' English?) [British!] These two, after being replanted, began to send out suckers, which I removed and planted out; and the process was continued until I had many dozen fine plants which had originated as suckers. Meanwhile, the two parent plants grew abnormally slowly, and it was only when in, as far as I remember, about two years, they gave up sending out suckers, that they bore fruit, ripened it, and died. Is not the moral of my story that this *Musa*, if injured, is apt to produce suckers at the injured parts? *Everard Im Thurn.*

"NEW CHISWICK, OR HORTICULTURAL INSTITUTE."—In carefully perusing the correspondence, it is very gratifying to observe that, amidst

diversities of opinion, the one aim is the prosperity of horticulture. All are united thus far, and I cannot believe that we shall divide. Our national need is a home of horticulture, not a "New Chiswick," and from the correspondence which has appeared, it is manifest that the feeling of the majority of horticulturists is in favour of the establishment of a home of horticulture. Still, should there be any doubt, I think the suggestion made by your correspondent, W. Goodlife (in your issue of the 2nd inst.), is a valuable one, and if carried out would place the matter quite beyond the region of uncertainty. A printed slip to every Fellow asking which scheme he supports, the New Chiswick or home of horticulture, would decide the question unmistakably. The lease of Chiswick has still some twenty years to run. Supposing a new site were selected, what benefit would be gained? Your correspondent, "O. T. F." writes: "As regards some of the work attempted at Chiswick, such as the trial of new flowers, fruit, and vegetables, it has been pointed out that this work is already carried out on a more exhaustive and extensive scale under the superintendence of experts and specialists by our great home and foreign horticulturists, and that in a far more precise, complete, and satisfactory way than can ever be the case at limited Chiswick. Moreover, all or nearly all of the satisfactory results of these trials are brought before the Society at its meetings in London for its approval or rejection, free of any cost to the Society." Baron Schroder has again evinced his interest, and I beg to endorse every word of his letter, which appeared in your issue of May 12. He writes: "I quite agree that the Royal Horticultural Society ought to try and acquire a hall of its own in a suitable position, before they spend any money in buying land to replace Chiswick, which they propose to abandon. . . . I am sure nothing would be more pleasing to the bulk of the Fellows than an announcement by the Council that they had secured a proper site, and they ought to do so before the Centenary year." *James L. Wood.*

PYRUS CORONARIA.—I am sending you a few blooms of the *Pyrus Malus angustifolius*, which is now in bloom. We have some branches quite 2 feet long, one mass of flower, and the scent is very like *Violets* or *Mignonette*. It is showy after all the other varieties are past, and we have several hundred plants three or four years old, and 4 to 5 feet high. I think when it gets better known it will be planted extensively. *W. D., Thos. Cripps & Son.* [Is not this *Pyrus coronaria*, Bechtel's var. ? Ed.]

IRRITATION OF THE SKIN CAUSED BY THE POISON IVY.—I am much obliged for your reply in last week's *Gardeners' Chronicle* in reference to this subject. We are able to prove that it is the *Rhus Toxicodendron* which caused the irritation of the skin. Last Tuesday I cut away some shoots, and the next day my face and arms began to swell, so that on Friday I was unable to see. It cannot be too well known to readers of the *Gardeners' Chronicle* that this climbing plant, although it is nice-looking, is decidedly unsuitable for growing on a house, for my mistress has had several very severe attacks, and we were unable to find out the cause until now. *F. Crook, Blandford.*

SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 5.—In spite of the meeting on Tuesday last being held almost before the Whitsuntide holiday was concluded, and that so little time had elapsed since the Temple Show, the Drill Hall at Westminster was nicely filled with exhibits, and most of these were uncommonly showy. But there were few visitors at any time during the day, and these few had the opportunity to inspect with convenience a very interesting collection of plants and flowers, in addition to which there was a very interesting exhibit of growing vegetables from Messrs. Sutton & Sons, Reading, and most tempting Peaches, Nectarines, and Strawberries from several exhibitors.

The Orchid Committee had not a great deal of work to do, and the list of awards it recommended was not so long as usual, there being only two Awards of Merit, and four Botanical Certificates.

The Floral Committee recommended the award of one First class Certificate to hardy *Rhododendron* Pink Pearl, shown by Sir Trevor Lawrence, Bart., and nine Awards of Merit, three of which were to new Roses, three to Paeonies, one

to a variety of tuberous-rooted *Begonia*, and one to a new strain of *Streptocarpus*. These are described briefly below. In the afternoon a lecture upon some of the more interesting plants exhibited was given by the Rev. Geo. Henslow. At this meeting there were 116 candidates elected Fellows of the Society.

Floral Committee.

Present: W. Marshall, Esq., Chairman; and Messrs. H. B. May, R. Dean, J. F. McLeod, Robert Fife, Chas. Jeffries, W. Bain, J. D. Pawle, J. T. Bennett-Poe, Chas. E. Shea, E. H. Jenkins, H. J. Jones, C. Blick, E. T. Cook, Geo. Paul, Jas. Walker, G. Reuthe, Jas. Hudson, John Jennings, and Ed. Mawley.

Roses were shown by Messrs. W. PAUL & SON, Waltham Cross Nursery, Herts, who had a group of plants in pots, and several large boxes of cut blooms. A new variety shown by a group of a dozen plants is described under "awards." Another new Rose, *Ella Mary*, of which one plant only was shown, has also much merit; it has shades of rose-pink and copper colour. A few very pretty varieties of *R. Wichuriana* crosses were shown as large plants. Evergreen Gem of this type was very pretty, and *Gardenia*, both of which had widely expanded creamy-coloured flowers. Pink Roamer is described under "awards." A seedling Rose, also at present unnamed but of much merit, was noticed (*Silver Banksian Medal*).

Messrs. FRANK CANT & CO., Braiswick Nurseries, Colchester, made an exhibit of some of the earlier flowering of the garden varieties of Roses, all of them very pretty.

A magnificent feature of this meeting was a group composed of cut spikes of *Eremurus himalaicus* and *E. robustus* shown by Messrs. JAR. VEITCH & SONS (Ltd.), King's Road, Chelsea. There were two dozen or so spikes of *E. himalaicus*, and nearly a dozen of *E. robustus*. The base of the group from which these spikes arose was composed of very fine *Primula japonica*, the strong flowers being of very rich colour. The two subjects together gave an effect that was greatly admired, and the Gold Medal awarded rightly reflects the opinion of most of the visitors. Never has *Eremurus* been shown publicly so well before.

Messrs. VEITCH & SONS had also a group of *Gloxinias*, which was really a collection of named varieties. The plants were well grown and bore a fine lot of flowers, but they were not more remarkable in this respect than for the excellence of the strain represented. Self coloured varieties, others with spotted flowers, and others again with colour only around the margins of the segments; there was variety sufficient to be charming, and the colours were distinct and brilliant, whilst the habit of the plants was very good also. There is little need therefore to particularise certain varieties, because from the rich crimson coloured *Empress of India* to *The Bride*, which is pure white, all were beautiful (*Silver Flora Medal*).

The hybrid greenhouse *Rhododendrons* that used to come with the few exhibits that were possible in February are still before visitors to the Drill Hall meetings at the approach of Midsummer.

The new *Carnation*, Lord Gerard, mentioned in our report of the Temple Show, was again brought before the Committee by Mr. Walters, gr. to Lord Gerard, Eastwell Park, Kent. It is a very pale primrose-coloured variety of the *Souvenir de la Malmaison* type, novel, but the Committee has not so far given it any award.

A group of Border *Carnations* in pots was shown by Mr. H. T. DIXON, Woodside Nursery, Halesham, Sussex. The plants were well grown, and many of the flowers perfect. The group included some of the latest and very choicest varieties, such as *The Cad*, scarlet; *Ivyland*, crimson, &c. A perfectly new one was called *Major-General Baden-Powell*, a crimson flower, that when grown upon a future occasion may show considerable merit (*Silver Banksian Medal*).

Mr. H. J. JONES, Ryecroft Nursery, Hither Green, Lewisham, showed a fine bank of tuberous-rooted *Begonias*, embracing single and double-flowering varieties. Of the singles we noticed *Gloriosa*, deep yellow; *Jealousy*, also yellow; *Snowdrift*, white; and *Nero*, dark crimson. Among the doubles, one named *Kathleen Shackleton*, with flowers almost the form of a Rose, white, with narrow pink margins to the petals, was exceedingly pretty. Very charming also were *Albion*, white; *Mrs. J. Powers White*, rose coloured; *Gurney Russel*, salmon-pink; and *Gladys Hemslay*, which is described under "awards."

Mr. JONES also made an exhibit of *Gloxinias*, showing a little group of well-grown plants of much merit. Cut blooms of Spanish *Irises*, Iceland *Poppies*, *Lilium longiflorum* *Harrisii*, and a plant of the new scarlet-flowered *Ivy-leaved Pelargonium* *Mrs. J. G. Day* were also from the Ryecroft Nursery (*Silver Flora Medal*).

Messrs. JOHN LAING & SONS, Forest Hill Nurseries, London, S.E., showed a few varieties of double-flowered tuberous-rooted *Begonias*, *Mrs. Gatti*, pale pink; *Yellow Gem* and *Lady Plowden*, deep pink.

Mr. W. G. GODFREY, Exmouth Nurseries, Devon, showed a number of flowers of a Poppy named *Admiration*, a rather dull coloured variety.

Anthurium Lawrencei from Sir Trevor Lawrence, Bart., Burford, Dorset (gr. Mr. W. Bain), a variety of *A. Andreanum*, has exceedingly large spathes of pure white, and the spadix is nearly white also.

Messrs. KELWAY & SON, Langport, Somerset, made a glorious exhibit of cut Paeonies and Pyrethrums, the flowers occupying a half of one of the long central tables. Tree and herbaceous Paeonies were represented, and one of each section gained an Award of merit. These varieties were *Lady Carson* and *Lord Roberts*. Another very fine tree variety of warm

colour, almost scarlet, was named Her Majesty, and the name of Sir Geo. White was attached to a pretty mauve variety of the herbaceous section. Lord Kitchener (tree) is a large single flower of orange-scarlet colour, and Kimberley is also a very effective one of the same type. Amongst the Pyrethrums the varieties were bewildering, yet all of them were of great beauty. Of the single-flowered, very attractive ones were Lady Symons, mauve colour; Comet, purple; Ladysmith, crimson; Lord Roberts, crimson; James Kelway, very dark, rich crimson. The following double-flowered varieties were conspicuous amongst others:—Aphrodite, white; Leonard Kelway, mauve; and Helton and Lord Rosebery, crimson. It will be observed from the topical names of many of those enumerated, there was an abundance of novelty in the exhibit (Silver-gilt Flora Medal).

Hardy Rhododendrons were shown largely by Messrs. W. PAUL & SON, Waltham Cross, Herts, who showed trusses of some sixty varieties, making a very large exhibit. But Rhododendrons do not show to advantage when stuck into flat boxes (Silver Banksian Medal).

Messrs. WALLACE & CO., Kilnfield Nurseries, Colchester, made a large exhibit of hardy, bulbous, and other flowers. There were choice varieties of Iris germanica and others, Ornithogalum arabicum, Brodiaeas in several species, and Calochortus; Aquilegia Stuarti, deep blue and white; Lilium Hansonii, L. excellens, L. umbellatum, and other species; Ixias, Sparaxis, and excellent specimens of the showy Incarnvillea Delavayi (Silver Flora Medal).

Messrs. PAUL & SONS, The Old Nurseries, Cheshunt, showed trusses of flowers of hardy Rhododendrons Duke of York and Duchess of York, both of them pretty, but the Duke the prettier.

Messrs. R. & G. CUTHBERT, showed plants of several varieties of Asilbe astilboides. There were four varieties, Dr. Catte, Prof. Suringar, W. E. Gladstone, and H. Witte. The varieties do not greatly differ from each other.

Mr. T. S. WARE (Ltd.), Feltham, had a collection of hardy plants and flowers including Irises, Ramondia pyrenaica, and R. p. alba, and a considerable number of Alpine species (Silver Banksian Medal).

Messrs. BARR & SONS, King Street, Covent Garden, London, had a fine lot of hardy and bulbous flowers, including Peonies in varieties, Papaver bracteatum, Potentillas, Centaurea montana sulphurea, Irises, Pyrethrum roseum in variety, and a number of Alpine plants (Bronze Banksian Medal).

Messrs. Dobbie & Co., Rothesay, N.B., and Orpington, Kent, showed about 70 bunches of Sweet Peas, representing the choicest varieties and exhibiting charming tints of colour. Their African Marigolds, Lemon Queen and Prince of Orange, were exceedingly good (Silver Flora Medal).

Messrs. GEO. JACKMAN & SON, Woking, had a collection of herbaceous and hardy flowers. We noticed good specimens of Edrianthus dalmaticus, Gerbera Jamesoni; and there were Iceland Poppies, Aster Alpinus superbus, cut flowers of the Coccinea hybrid Clematises, &c. (Silver Flora Medal).

List of Awards.

Begonia Gladys Hensley.—This is a double-flowered, tuberous rooted variety, shown by Mr. H. J. JONES, Ryecroft Nursery, Lewisham. The flowers are of beautiful form, pink in colour, with white centre (Award of Merit).

Lilac Mme. Abel Chatenay.—From Mr. W. MARSHALL. A fine, white, double-flowered variety (Award of Merit (3)).

Peony Cream Perfection.—A true Peony, with large, single cream-coloured flowers, each of which has a pale dull crimson mark at the interior base of each petal. The margins of the petals are irregularly toothed. From Messrs. WALLACE & CO., Colchester (Award of Merit).

Peony Lady Curzon.—This herbaceous Peony has large double flowers, white, or faintly tinted. From Messrs. KELWAY (Award of Merit).

Peony Lord Roberts.—A true Peony, with large white single flowers, that have just a suspicion of flesh colour in centre. From Messrs. KELWAY (Award of Merit).

Rhododendron Pink Pearl.—This is one of the most beautiful of all hardy Rhododendrons, and has previously been given an Award of Merit by the Royal Horticultural Society when shown by Messrs. John Waterer & Sons, Bagshot. The blooms are very large, rich pink in colour, and fifteen to twenty are produced in a single truss. Messrs. Waterer have many times assured us that so far as their experience has gone, the variety is perfectly hardy. From Sir TREVOR LAWRENCE, Bart., Burford, Dorset (First-class Certificate).

Rose Pink Banner.—A variety from a cross between R. Wichuriana and some other. The variety has a rambling habit, and makes very long shoots, that flower freely. The blooms are perfectly single, deep rich rose in colour, with pure white centre, save the yellow anthers. From Messrs. W. PAUL & SON, Waltham Cross (Award of Merit).

Rose sinica Ammonia.—The flowers are single, and from 3 to 4 inches across, deep pink in colour. Leaves, and habit of growth similar to the species R. sinica. From Messrs. PAUL & SON, The Old Nurseries, Cheshunt (Award of Merit).

Rose Tennison.—A new Hybrid Tea, raised by Messrs. W. PAUL & SON, Waltham Cross. The foliage is strong, and would seem to indicate as vigorous a grower as could be expected, considering its affinity. Leaves shiny and deep green, margins very evenly toothed. Flowers full, globular, with high centre, petals very wide, colour of flower very pale pink. A fine exhibition Rose of the type of Lady Mary Fitzwilliam. From Messrs. W. PAUL & SON, Waltham Cross (Award of Merit).

Streptocarpus achimiflorus.—This is a new strain of the popular Streptocarpus, obtained by Messrs. JAS. VEITCH &

SONN, Chelsea, from a cross between one of their well-known hybrids and S. polyanthus. The seedlings are quite intermediate, and the strain will be sure of appreciation. Some of the plants have white flowers with lemon throat, and others are mauve with a whitish throat. An Award of Merit was given as a recognition of the merit of the strain.

Orchid Committee.

Present: Harry J. Veitch, Esq., in the chair; and Messrs. Jas. O'Brien (Hon. Sec.), de B. Crawshaw, H. Little, H. T. Pitt, F. Sander, H. J. Chapman, W. H. Young, H. A. Tracy, J. W. Potter, W. H. White, E. Hill, J. Douglas, J. Colman, and W. Cobb.

Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young), exhibited a group remarkable alike for the excellent quality of the flowers of the rare plants exhibited, and for their splendid condition. The Cattleyas and Laelio-Cattleyas were specially fine, and included a grand example of the typical Cattleya Mossiae, with about two dozen fine flowers; C. M. Reineckiana, with nine flowers; C. M. E. Ashworth, a pale form with a lavender coloured tint; two good Cattleya Warneri, one with twelve flowers; C. Mendell and C. M. Nellie Wigan, a pretty white flower with some distinct colouring on the lip; C. x Prince of Wales, a fine dark Laelia purpurata, L. Digbyana, and L. tenebrosa, with nine flowers; several Phalaenopsis grandiflora in robust health; the purple P. speciosa Imperatrix, and some smaller species; Dendrobium x Owenianum, D. Farneri roseum, and D. F. albens; two Aërides Fieldingi with two spikes each; Tuinia Marshalliana, and T. x Veitchi; Cymbidium tigrinum, several good Miltonia veillaria; some fine Cypripediums, including C. x W. H. Young (barbatum x Curtisii); Odontoglossum crispum; four good forms of Laelio-Cattleya x eximia; and the neat little Eria extensoria, with ten spikes springing from the tiny scale-like plant, which it is very creditable to Mr Young that he has maintained in health for so many years. (A Silver Flora Medal was awarded.)

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood), was awarded a Silver Banksian Medal for an excellent group, the central plant in which was the fine Odontoglossum x excellens Rosslyn variety, which is generally admitted to be the showiest of its class. The broad-petalled light yellow flowers had the bases of the sepals and petals white around the column, and were decorated with distinct large red-brown blotches. The spike terminated with a double flower, or rather two flowers joined together. There was a fine Laelia Digbyana, a richly coloured L. tenebrosa, also L. purpurata; good Cattleya Mosai, C. Mendell and C. Forbesii, two good Zygopetalum Klabochorum and one Z. Burli, Miltonia veillaria, M. Rosell, some showy Odontoglossums, Promenaea xanthina with many flowers, Dendrobium Dearei, and other showy species.

R. I. MEASURES, Esq., Cambridge Lodge, Camberwell (gr., Mr. H. J. Chapman), showed the singular Miltonia veillaria Cambridge Lodge variety, the petals in some degree imitating the lip in colour; and the rare Saccolabium ampullaceum moulmainense, with six spikes of rose-crimson flowers.

Sir J. MILLER, Bart., Manderston, Duns, N.B. (gr., Mr. J. Hamilton), again sent an inflorescence of the pretty orange-coloured Laelio-Cattleya x Lady Miller; L.-C. x Martuetti, and another hybrid.

A. H. SMER, Esq., The Grange, Hackbridge (gr., Mr. Humphreys), showed flowers of Cattleya Mossiae, and C. Mendell hackbridgensis.

From Dr. B. CRAWSHAW, Esq., Rosefield, Sevenoaks (gr., Mr. B. Cook), was Odontoglossum crispum "Cecile de Rochfort," a singular narrow-petalled form, white, tinged on the sepals with rose, and bearing numerous brown blotches. Also cut spikes of O. x Andersonianum candidum, O. x elegantum, and O. x citreolum Rosefieldense, the last-named having cream-coloured sepals and petals bearing numerous small dark spots, the lip being rose colour.

Mr. J. DOUGLAS, Great Bookham, showed typical Cattleya Warneri, C. Mossiae, and cut spikes of the pretty white C. Mendell albens.

Mr. H. A. TRACY, Twickenham, had Cattleya Mossiae and Brassia longissima.

W. A. GILBERT, Esq., Fair Oak Lodge, Eastleigh (gr., Mr. Carr), exhibited a spike of a very large form of Odontoglossum crispum.

Awards.

AWARD OF MERIT.

Dendrobium x Dulhou-nobile (Dulhousteumum x nobile), from Sir TREVOR LAWRENCE, Bart., Burford (gr., Mr. W. H. White).—A very remarkable and fine hybrid with flowers as showy as those of D. Dulhousteumum, but in colour more resembling the other parent. The inflorescence exhibited a tendency to produce a raceme. The large flower had ovate sepals and petals, the former the more acuminate; white at the base, the outer two-thirds tinged and veined with rose-purple. Lip flat in front, and slightly concave at the base, which has a small whitish blotch surrounded by the rich claret-coloured disc, the front being white with a rose-coloured tip. Growths distinctly resembling D. Dulhousteumum. The cross was raised by R. Brooman-White, Esq.

Cypripedium x Godefrayae, Wigan's variety, from Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young).—Flower large and finely formed; pure white, with a purplish freckling on the exterior of the dorsal sepal, and some minute purple spots on the petals.

BOTANICAL CERTIFICATE.

Dendrobium stuprum, from Sir F. WIGAN, Bart.—A slender stemmed species, with small white flowers.

Phalaenopsis fuscata, from Sir FREDERICK WIGAN, Bart.—A singular small brown-flowered species, with rounded front to the labellum.

Phalaenopsis Manni, from Sir F. WIGAN, Bart.—Flowers yellow, heavily marked with chestnut-brown.

Brassia maculata, from Sir F. WIGAN, Bart.—Flowers whitish, with chocolate-coloured markings.

Oncidium nanum, from Mr. E. KROMER, West Croydon.—A dwarf species, with pretty brown flowers, the margin of the segments and front of the labellum yellow.

Fruit and Vegetable Committee.

Present: Philip Crowley, Esq. (Chairman), and Messrs. R. Beckett, Geo. Kelf, Jas. H. Veitch, A. H. Pearson, Alex. Dean, S. Mortimer, G. T. Miles, W. Bates, Geo. Wythes, Jas. Smith, Geo. Nonnan, H. Balderson, H. Somers Rivers, and H. Esling.

There were some very highly-coloured, well-grown Nectarines exhibited. Lord ALDENHAM, Aldenham House, Elstree (gr., Mr. E. Beckett), gained a Silver Banksian Medal with some fruits of the variety Lord Napier. There were over a score of splendid specimens of this fine variety.

M. LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton (gr., Mr. J. Hudson), showed fruits of Cardinal, Lord Napier, and Early Rivers Nectarines, most of them from trees grown in pots, and carrying good crops. The fruits shown were all good, and they were from trees started on December 16 last, except Early Rivers, which was started on December 1st, and one tree carries 500 fruits. The point shown by the exhibit was that Messrs. Rivers' New Cardinal under similar conditions will ripen at least ten days earlier than the very earliest varieties hitherto known (Silver Knightian Medal).

Messrs. T. RIVERS & SONS, Sawbridgeworth, also showed Nectarines Cardinal and Early Rivers. There were twelve fruits of each, and those of Cardinal whilst being larger than those from Mr. Rothschild's were not so finely coloured (Silver-gilt Knightian Medal).

Strawberries were to the front from Messrs. LAXTON, of Bedford, and a new variety in this exhibit gained an Award of Merit. In addition to that variety, there were large baskets containing monstrous fruits of Leader, a dark-coloured fruit with prominent seeds; Mentor, Millbasket and a new early-fruited variety from a cross between Royal Sovereign and Sir Jos. Paxton. (Chinax is the progeny of Latest-of-All and Waterloo, and appears to be a good late-fruited sort (Silver Banksian Medal).

Vegetables were shown largely by Messrs. SUTTON & SONS, Reading, who had growing crops of Peas, Cucumbers, and Potatoes; and Potatoes, Tomatoes and Cucumbers in dishes also. The growing Potatoes were exhibited in a novel manner. The tubers were planted in long narrow boxes at the end of February, and before bringing them to the Drill Hall, one side of each box was removed, a portion of the soil taken away, and a glass side substituted. It was thus possible to see the new tubers of the growing Potatoes very clearly. The varieties shown in this manner included Ringleader, Ninety-Fold, May Queen, Ashleaf, Al, and Harbinger, all of which are early maturing varieties, and described as First Earlies. The Peas shown as a growing crop included Early Giant, Al, May Queen, and Empress of India, all of which were very good. The Cucumber was an attractive one called Lord Roberts. Then in dishes there were shown excellent fruits of Tomato Winter Beauty, and Cucumbers Peerless and Al; while of Potatoes there were splendid tubers of the varieties enumerated above (Silver-gilt Knightian Medal).

Awards.

Strawberry Trafalgar.—This is a new late-fruited Strawberry, obtained from a cross between Latest-of-All and Frogmore Late Pine. The fruits are large in size, cuneate or wedge-like in shape, with flattened sides, and of fine flavour. In colour they are rather light, as might be expected. From the plants shown, the variety may be expected to crop very freely, and it is specially recommended as a fine quality, late-fruited Strawberry. From Messrs. LAXTON, Bedford (Award of Merit).

LINNEAN.

MAY 8.—Mr. C. B. CLARKE, F.R.S., Vice-President, in the Chair. Prof. ALFRED CORNIAUX was elected a foreign member.

Mr. H. E. SMEDLEY, F.L.S., exhibited a number of Botanical Wax Models, prepared on an enlarged scale to show the morphological structure and also the process of reproduction in various types of plants.

Mr. J. E. HARTING, F.L.S., exhibited and made remarks on some skins of Willow Grouse collected by Prince Demidoff on the N.W. border of Mongolia between Altai Mountains and the Kobdo River.

On behalf of Miss E. S. BARTON, the Botanical Secretary read a paper on a new species of Halimeda from Funafuti; and on behalf of Miss A. L. SMITH a paper on some West Indian Fungi, with descriptions of a new genus and species.

ANNIVERSARY MEETING.

MAY 24.—Dr. A. GUNTHER, F.R.S., President, in the Chair. The Librarian's Report having been read announcing the additions to the Library by donation and purchase, the

auditors' accounts were presented by Mr. Henry Groves. The treasurer thereupon made his annual financial statement, and having pointed out the great inconvenience caused by the non-payment of subscriptions, and the unreasonable conduct of those who withhold payment for three or four years, and pay no heed to the repeated applications from the treasurer, it was moved by Mr. Alfred O. Walker, seconded by Mr. F. G. Smart, and carried:—

"That the Council be requested to frame such an alteration of the Bye-Laws as may compel defaulting Fellows to pay their subscriptions, and to submit the same to the Society at their next General Meeting."

The President then opened the chief business of the day, when the Fellows present proceeded to ballot for the President, Officers, and Council for the ensuing year.

Scrutineers having been appointed, and the votes counted, the result was declared to be as follows:—The following members were removed from the Council:—Mr. F. Darwin, Mr. H. W. Monckton, Mr. G. B. M. Murray, Mr. H. Saunders, and Mr. W. P. Sladen, and the following were elected into the Council to replace them:—Mr. Clement Reid, Dr. D. H. Scott, Rev. T. R. R. Stebbing, Prof. S. H. Vines, and Mr. A. Smith Woodward; and as President, Prof. Sydney Howard Vines, F.R.S.; Treasurer, Mr. Frank Crisp; Secretaries, Mr. B. Daydon Jackson and Prof. G. B. Howes, F.R.S.

The retiring President then delivered his annual address, choosing for his subject "The unpublished Correspondence of William Swainson with contemporary Naturalists (1806-1840)," lately acquired by the Society.

The Gold Medal of the Society was then presented to Prof. ALFRED NEWTON, M.A., F.R.S., in recognition of his important contributions to Zoological Science.

AGRICULTURAL SEED TRADE ASSOCIATION.

At the usual annual dinner of the Agricultural Seed Trade Association, at the Holborn Restaurant, on the evening of Monday, the 28th inst. Mr. Charles Load, of Ashford, in the Chair, he took occasion to remark in proposing the toast of the evening, that they must all be glad to find such a satisfactory report, which showed that the Association was in a flourishing condition, and much regretted the loss by death, during the past twelve months, of two esteemed members, Messrs. Prentis and Jennings. The speaker could not help thinking that this Association, which has been in existence for twenty years and done such excellent work, might very well extend its sphere of usefulness and start a central station, where members only might be able to send their seeds to be examined and tested, which would save the trouble, delay, and expense of sending them abroad as at present, and would possibly be the means of adding many more members to their list. The Committee and members will have noticed that the President of the Board of Agriculture had appointed a Departmental Committee to enquire as to the conditions under which Agricultural seeds are at present sold, and to report whether any further measures could be taken to secure the maintenance of adequate standards of purity and germinating power; but the chairman doubted whether any such measures would be of advantage to the public, but at the same time it meant that this Association would have to do all in its power to keep pace with the times.

THE ROYAL BOTANICAL AND HORTICULTURAL OF MANCHESTER.

The annual show of this important Society was opened at the Gardens, Old Trafford, on Saturday, June 2. It was obvious to the visitors at this show that many of the exhibits, especially the large groups of Orchids, showed an improvement in various features upon those of last year.

AMATEURS.

For the best miscellaneous collection of Orchids in bloom, E. ASHWORTH, Esq., Wilmslow, was 1st with a good group of fine varieties of spotted forms of *Odontoglossum crispum*, *O. Pescatorei*, also several fine examples of *Lælia purpurata*, *Cattleya Mossiae*, &c. T. STATTEN, Esq., Stand Hall, was 2nd; and Messrs. HEATH & SONS, Cheltenham, were 3rd.

Mr. J. CYPHER made as usual a great display of Orchids, extending across the end of the large conservatory, and the artistic arrangement of the plants was certainly a fine feature of the show. In competition Mr. J. CYPHER was easily 1st, with a group which comprised, besides others, several fine varieties of *Lælia purpurata*, good forms of *C. Mossiae*; large, well-bloomed plants of *Dendrobium nobile*; and in the centre of the group a fine bank of *Miltonia vexillaria*, and several excellent examples of *Odontoglossum crispum*, and *O. loochistylense*. Mr. ROBINSON, Altrincham, was a good 2nd for a group of Orchids, which possessed a frontage of 42 feet, and effectively arranged. The prominent plant was one of *Cattleya Mendellii*, with about twenty flowers, which received an award of a Cultural Commendation.

For the best collection of *Cattleyas* and *Lælias*, Mr. J. CYPHER took the leading prize with some fine examples of *Lælia purpurata*, *Cattleya Mendellii*, and *C. Mossiae*. Messrs. HEATH & SONS were awarded the 2nd prize. Mr. CYPHER was an easy 1st for ten specimen Orchids in flower, showing excellent *Lælia purpurata*, *Dendrobium nobile*, and *Miltonia vexillaria*. Messrs. HEATH & SONS, Cheltenham, took the 2nd place. Messrs. LOW & CO., Enfield, received an Award of Merit for a pretty, light coloured *Odontoglossum Andersonianum*. Messrs. CHARLESWORTH & CO., Bradford, were the recipients of an Award of Merit for a plant of *Lycaste Bolleei* ×, a supposed natural hybrid between *L. Skinneri* and *L. plana Measurersiana*. They showed likewise *Cypripedium Chapmani*

Heatonense, which received an Award of Merit; *C. Vipanilavigatum* × *C. niveum*, Award of Merit; *Cattleya Mossiae magnifica*, Award of Merit; a pretty spotted *Odontoglossum Imperator*, Award of Merit; and a First-class Certificate to a pretty clear yellow form of *Odontoglossum crispum*.

Messrs. ROBSON received an Award of Merit for *Cattleya Mossiae fimbriata*. Mr. J. CYPHER had an Award of Merit for *Cattleya Mossiae* Distinction, a pretty, light coloured form; also for *Lælia purpurata* Queen Empress, having a very dark, rich coloured lip.

E. ASHWORTH, Esq., received an Award of Merit for *Cypripedium Rothchildianum*, a fine dark variety, measuring 14 inches across; *Odontoglossum Adrianae* var. *Ernest Ashworth*, a First-class Certificate; and the same honour for *O. crispum* Arthur Ashworth, a distinct looking, brown spotted variety; and to *Cattleya Skinneri* Temple var. A Gold Medal was awarded to Messrs. COWAN, Gatesacre, for an excellent group of Orchids. Messrs. CHARLESWORTH & CO., a Gold Medal for Orchids; STANLEY, ASHTON, & CO., Southgate, London, N., a Gold Medal for Orchids; Messrs. LOW & CO., Clapton and Enfield, a Silver Medal for Orchids.

The Council of the Society gave Mr. J. CYPHER a Gold Medal for his competitive group of Orchids, in addition to the award made by the judges. Messrs. CUTBUSH & SONS, Highgate, London, received a Gold Medal for an ornamental group of Carnations, Ericas, Roses, and Orange-trees. This firm staged a group of trimmed trees similar to that which they exhibited at the Royal Horticultural Society's Temple Show. Messrs. R. P. KER & SONS, Liverpool, were 1st for a large miscellaneous group, consisting of highly coloured *Crotons*, *Dracenas*, *Hippeastrums*, *Caladiums*, &c., the judges awarding a Gold Medal for excellence, in addition to this prize. The Right Hon. the Earl of ELMER, Worsley Hall, was 2nd. Messrs. KELWAY & SONS, Langport, Somersetshire, were awarded a Gold Medal for a splendid group of hardy herbaceous plants. J. WATERER & SONS, Bagshot, Surrey, received an award of a Gold Medal for *Rhododendrons*. For twelve herbaceous *Calceolarias*, J. BROWN, Esq., Heaton Mersey, was an easy 1st; and E. O. SCHNEIDER, Esq., Whalley Range, was 2nd. The best dozen of *Cinerarias* came from Baron J. VON KROOP, Withington, who was 1st. The best dozen pots of *Panicles* or *Violas* was shown by THOMAS HARKER, Esq., Withington, who was 1st; and F. W. TRAVERS, Esq., 2nd. Baron VON KROOP was a good 1st for six *Adiantums*. For six hardy Ferns, JAMES LAMB, Esq., was the only exhibitor, and was placed 1st; the same exhibitor being likewise 1st for a collection of thirty hardy herbaceous plants. The best group of miscellaneous plants in or out of bloom was that staged by Mrs. PEASE, Woodside, Darlington, who was a good 1st, with a very effective arrangement of *Codiums*, *Orchids*, *Anthuriums*, and tall *Palms*. Hand bouquets were well shown, and attracted much attention.

FRED HARDY, Esq., showed, under a bell-glass, a very pretty hybrid Orchid named *Sophro-Cattleya George Hardy* = *Sophranitis grandiflora* × *Cattleya Aclandiae*, sepals and petals of a dull red tint, lip of bright red, and throat yellow.

ANSWERS TO CORRESPONDENTS.

ASPARAGUS SPRENGERI: Carton. The plant produces seeds under cultivation, and these may be obtained through the more important seed-houses.

CUCUMBER DISEASED: Anxious. Where the stems have shrivelled, a fungus of the dark *Cladosporium* kind is present. This should yield to spraying with potassium sulphide (½ oz. to each gallon of water).

INSECTS ON VINE: Enquirer. The young roots are dead, but we find no insects upon them or in the soil. There is no appearance of *Phylloxera*.

LONICERA HILDEBRANDIANA: W. B. This plant does best in this country when planted out in a border in a warm greenhouse. It is a comparatively new plant, and few persons know it. It was figured and described in the *Gardeners' Chronicle*, Sept. 17, 1898, p. 219.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—Chas. Scott. 1, *Cheiranthus Marshalli*; 2 and 3, *Phlox subulata* varieties; 4, *P. s. var. Nelsoni*; 5, *P. s. (type)*; 6, *Arenaria montana*; 7, *A. purpurascens*; 8, *Aubrieta deltoidea* var.; 9, *Saxifraga ceratophylla*; 10, *S. decipiens*; 11, *S. hypnoides*; 12, *S. sponhemica*.—J. H. Asparagus Sprengeri.—J. W. McH. *Pyrus torminalis*, a wild tree.—J. R. Both varieties of *Odontoglossum* × *Coradinei*.—J. M. L., *Liscard*. *Broughtonia lilacina*, known in Gardens as *Læliopsis Dominyensis*.—R. L. *Prunus Padua*.—X. J. R. 1, *Pavia flava*; 2, *Thuia orientalis* var.; 3, *Genista hispanica*; 4, Not recognised; 5, *Pilea muscosa*; 6, *Ornithogalum umbellatum*.—A. 1, 2, and 3, varieties of *Pansy*; 4, *Cerastium tomentosum*; 5, *Sedum acre*; 5, *Saxifraga hypnoides*.—W. E. J. The "*Oxalis*" is really a *Trefoil*; a form of *Trifolium repens*. We do

not know where to get it; but it is easily propagated, and may ripen seeds.—Constant Reader. 1, *Cornus mas*; 2, *Spiraea confusa*; 3, *S. prunifolia*; 4, *Kerria japonica*, variegated; 5, *Weigela hortensis*; 6, *Berberis Darwini*.—G. H. The Gooseberry fungus, figured in *Gardeners' Chronicle*, August 20, 1898, p. 145. The Strawberry may be President, but we are not sure.—J. S., Maidenhead. *Pyrus Aria*.

PEACH-TREES AND OTHERS ON A SOUTH WALL: B. A. L. L. The trees having suffered in previous years by being overrun with red-spider, you cannot do better than wash them with the garden engine and clear water before 7.30 A.M. and 6 P.M. Be not afraid to use cold water, if it be not drawn directly from a well. Commence each day from a different end of the wall, so as to get the water on the backs of all the leaves; and use as much force as you can, short of tearing the leaves or bringing off the fruits. The water running down into what is usually the driest part of a border, that under the coping, will have a good effect on the growth of the trees. It will be necessary to keep the shoots closely fastened in.

ROSE SHOOT: J. J. Your Rose shoot is attacked by the Orange-fungus (*Phragmidium subcorticatum*). Burn all the affected leaves. Spray the plants with weak Bordeaux Mixture next year before the buds expand.

ROSES WITH MONSTROUS CENTRES: J. G. W., and others. Proliferation, induced by too much vigour, in some cases producing leafy growth, at other times shoots and blooms. It is always a case of growth going on when it ought to stop. The malformation is not uncommon.

STRAWBERRIES DISFIGURED: G. T. The fruits sent seem to have been eaten by slugs. Nothing can be done at this season beyond supporting the trusses on wire frames made for the purpose, and sold by the horticultural sundriesmen; or on forked twigs stuck in about a foot above the ground. Means should be taken later to lessen the number of the slugs by trenching and liming the land, and keeping ducks or gulls upon it.

THREE ROWS OF PLANTS FOR A NARROW BORDER: Bertha Green. *Gladiolus Branchleyensis*, back row; *Truffaut's Asters*, either *Peony*-flowered or *Victoria*, middle row; and French *Marigolds*, such as *Dwarf Golden*, *Dwarf Striped*, or *Dwarf Orange*, front row. If a row consisting of *Asters* solely be not admired, plant alternately with *Heliotrope Anna Turrel*, which grows to about 2 feet in height. If space permit, plant a line of *Sweet Peas*, raised in pots a month ago, as a background to the border. You will then have a border redolent of scents, and a pleasantly contrasted lot of colours. The *Asters* should be chiefly blue-coloured, and it is not too late to obtain the *Gladiolus* corms.

TOMATOS: G. J. The leaves you send appear to be affected with the "sleepy disease." The fruits may be attacked by spot, *Glascopium*; but you should send specimen.

VINES MILDEWED: F. W. S. A case of mildew, probably favoured by the defects you mention in the house. If the Grapes are not too large now, spray with potassium sulphide (½ oz. to each gallon of water). Next season this treatment should begin early, before the foliage appears, and be continued, if any signs of mildew appear.

VIOLETS TO PROPAGATE FOR FRAME-WORK: Kyrl. It is rather late to pull old plants to pieces, and secure the young runners which have roots; but with care in selecting the best of these, planting them forthwith in a partially-shaded, fairly well-enriched plot of land, mulching between the rows with half-decayed leaf-soil or Mushroom-bed manure, after affording water plentifully at the time, and bi-weekly afterwards, good results might be obtained. The plants must not be allowed to get overrun with red-spider, which is sure to occur if they are not kept well syringed, and the soil moist in dry weather. Be careful to remove all runners as soon as they form on the plants.

COMMUNICATIONS RECEIVED.—Capt. Walters, letter forwarded as desired.—D. Allester.—J. Shennan.—Capt. H. Rogers.—E. T. A. C. F.—D. T. F.—G. W.—W. H. M.—J. H.—Bailey Wadda.—J. R.—W. G. S., Leeds.—R. N.—H. E.—S. H.—W. E., Hyde.

SPECIMENS, PHOTOGRAPHS, ETC., RECEIVED WITH THANKS.—W. G. S.—E. M. Thurn.—R. L.—R. Lindsey.—S. K.

(For Markets and Weather, see p. x.)



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WREST PARK.

A FEW days ago the writer left London to visit Wrest Park, with a view to obtaining some particulars of the more interesting features of this delightful place. Adjectives, it is admitted, are apt to creep in far too frequently when we attempt to describe garden scenes, and the introduction of one thus early must be excused, on the ground that residing in London I was peculiarly susceptible to the charms of such an estate.

There are so many admirable gardens in London and its suburbs, that a large share of the available time of a horticultural journalist is spent in visiting one or other of them, and he becomes accustomed to their exceedingly smart appearance, the skill that is exercised to use to the utmost every inch of ground, and the large area of glasshouses most of them have in proportion to the extent of pleasure-grounds and kitchen-garden. Therefore it is that a demesne like Wrest has peculiar fascination, possessing as it does features so opposite to the conditions that govern the suburban garden, such as lengthy avenues of giant Elms, seemingly endless walks, wide stretches of greensward, extensive woods and shrubberies, through which are gravel walks that lead invariably to objects of interest; sheets of water, flower and kitchen

gardens on a large scale, and a park that extends further than can be seen, and is studded with magnificent timber and browsed by graceful deer. And beyond these attractions, there are in the monuments, statuary and masonry, so frequent in the grounds, many links with the remote past. Indifferent indeed must he be to whom such scenes have not exceeding interest.

A SUMMARY OF ITS HISTORY.

Wrest is the property and occasionally the residence of Francis Thomas de Grey-Cowper, seventh Earl Cowper, and lies four and a half miles distant from the Midland Railway Station, Flitwick, in Bedfordshire. Earl Cowper inherited the estate from his mother, who was a daughter of Earl de Grey of Wrest, who was formerly Lord Grantham, Lord Lieutenant of Ireland in 1841. This Earl de Grey built the present mansion, and laid out the flower garden and the kitchen gardens.

The De Grey family has been traced back to the year 1086, when Auchitel De Grey held five hides of land in Herefordshire. Subsequently a Baron Grey de Ruthyn was created Earl of Kent by Edward IV. in 1465. The ninth Earl of Kent, Henry, married for his second wife Amabel, a widow of a son of the Earl of Westmoreland. After the Earl's death in 1651, Amabel lived at Wrest until her own death in 1698, at the age of ninety-two. She did much for the house and the estate, and was known as the "Good Countess." The eleventh and last Earl was Henry, born at Wrest in 1871, who was afterwards in 1710 made Duke of Kent, the only Duke of Kent connected with the De Greys. The Duke had much to do with Wrest, and, as we shall see just now, the gardens were originally laid out by him. Wrest afterwards became the home of the Duke's grand-daughter, Lady Jemima Campbell, who was married to Viscount Royston, eldest son of Philip, Earl of Hardwicke, both of whom did much in the way of improving the gardens. Thus in the "Wilderness," as the great shrubbery had used to be called, there is an old stone column—the "Rustic Column"—which bears the inscription:—

"THESE GARDENS, ORIGINALLY LAID OUT BY
HENRY, DUKE OF KENT,
WERE ALTERED BY
PHILIP, EARL OF HARDWICKE,
AND
JEMIMA, MARCHIONESS GREY,
WITH THE PROFESSIONAL ASSISTANCE OF
LANCELOT BROWNE, Esq.,
IN THE YEARS
1758—1759—1760."

The next occupier of Wrest, of importance from our point of view, was the late Earl de Grey already alluded to, who was also third Lord Grantham, and inherited Wrest after the death of his aunt in 1833.

SOME NOTEWORTHY TREES.

So much for the historical interest of Wrest. I must not pursue the subject further, but hurry to note some of its horticultural features.

In the first place, then, the visitor arriving at Flitwick station will see something to admire before reaching the mansion, or even the gardens. There are two avenues of lofty Elms—one along the roadside for a long distance, and a shorter one immediately upon entering the park. Though the trees that flank the public road are remarkable (especially as seen recently, when they had an unusual development of "hops," as

the seed-vessels are called), those inside the park are decidedly finer, with higher, bigger limbs, and there are few such avenues in this country. Persons who have a knowledge of the peculiarity of the Elm to drop large, apparently healthy branches, without much provocation, might prefer not to pass under them frequently. Ash, Beech, and Oak are each represented by capital specimens in the park and in the pleasure-grounds, as are Horse-Chestnuts also. Some of the best of these latter are in the vicinity of the orangery, of which something must be said presently.

There is a superb Beech-tree in a part of the shrubbery; it is 42 feet 2 inches from the ground-level to the first fork, and at 5 feet from the ground measures 12 feet 2 inches in circumference; but the trunk is so clean and clear-looking that it is an exceptional tree.

Conifers have not been largely planted at Wrest, there are some of the more popular species, and several of them succeed well, but not all. A specimen of *Sequoia gigantea* merits remark (see fig. 121, p. 374). It is said to have been planted by the late Mr. Snow in 1856, and must therefore have been one of the first introduced into this country. It is now a fine tree, with branches that sweep the ground at its base. Here are the exact measurements: height, 74 feet 3 inches; girth at ground level, 21 feet 3 inches; and at 3 feet from the ground, 15 feet 3 inches; the branches extend from north to south 36 feet, and from east to west 35 feet. The soil is a sandy loam, resting on a sub-soil of strong clay. Other trees there are in the pleasure-grounds and "wilderness" of considerable interest. There are three *Liriodendrons* (Tulip-tree), and some fine deciduous Cypresses.

THE FLOWER GARDEN.

Wrest House, as already stated, was built by the late Earl de Grey, and it was commenced in 1834 on a site a little to the rear of the old building, in order to obtain the advantage of higher ground. It is said that the Earl was largely his own architect and builder, and it was he undoubtedly who designed the large, formal flower-garden that still exists. The house is quite French in style, and was built with Bath-stone. In keeping with it, and a broad terrace, is the French garden, with its box-edged beds and paths of Matlock-spar. The immediate scene is diversified by much emblematic statuary, eight of which represent the elements and the seasons. There are two flower-gardens, one at the south front of the house, divided in the centre by a broad path, and another at the west side. The smaller one at the west side is of geometrical design, and of considerable less interest than the larger one, the design of which less suggests the compass. It may be described best as a form of tracery, its chief characteristic being that many of the beds represent a Tulip-flower, broken from the plant with a long scape, and laid down. It is immeasurably more attractive than a series of oblong, octagon, circular, or other geometrical beds would be.

Our figure on p. 375 shows the flower-garden on the south front, and has been prepared from a photograph by R. J. Anderson & Co., Luton.

Countess Cowper takes a personal interest in the decoration of these beds; and the coloured plan of the whole, according to which they have just been planted, is her own work. Her system avoids all contrasts of colour; deep blue gives place to less deep blue, and then again to pale blue, before another colour is

approached. It is indeed a study in graduated colouring. Mr. Mackinlay, the present gardener, has found it necessary, in order to plant the flower-gardens at Wrest, to raise a stock of 5000 zonal Pelargoniums, 3000 Verbenas, 1500 Dwarf Marigolds, 7000 Ageratums Imperial Dwarf; 2000 Tropæolums, 6000 Iresine in variety, 2000 Lobelias in variety, 1600 Alternantheras, 300 Cannas, 1000 Coleus, 600 Calceolarias, 600 Dahlias, 500 Autumn-flowering Chrysanthemums, 1500 Pyrethrums; also Heliotropes, Hollyhocks, Lemon-scented Verbenas, and many hardy and half-hardy annuals.

On either side the central path, through the south flower-garden, are very large Bay and Portugal Laurel-trees in tubs, and these are in accordance with the formal character of the entire scheme. Karl Cowper has just added a few more of these, in order to carry the line up to the fountain, and thus improve a scene that is one of the glories of—

THE PLEASURE GROUNDS.

Step out of the mansion on to the terrace, and your view would extend about half a mile, over a landscape which has been described, not inappropriately, as suggestive of Versailles. The French mansion at your back, the French garden in front, divided in the centre by a broad path flanked with trimmed Laurels, and in the extreme distance a lake and a pavilion. The view to the right and left of the flower garden for some distance is terminated by lofty Elms. The broad path in the centre leads to a handsome fountain of Sicilian marble, standing in the centre of a lawn, and fed by cisterns at the top of the house, whither the water is forced by one of Blake's hydraulic rams. The view is continued over an artificial lake of oblong shape, and is terminated by a large dome-shaped pavilion, except that the tops of the Barton-le-Cley hills may be seen above. There are gravel paths on either side of the lake, and high trees, so that the view does not extend to the right or left.

At a point near the fountain the grounds are traversed at right angles by what is known as the "Broad Walk." This is some 1,500 yards long, 40 feet wide, and apparently perfectly straight, extending to a wood on Cain Hill on the one side, and to the Old Park on the other. On Cain Hill there is an Obelisk, and at the other end in the Old Park there is a column. The Obelisk was raised to the memory of the birth of an Earl of Harold, son of Henry Duke of Kent. An inscription upon the column at the other end of the walk informs us that it was erected by Amable, Countess de Grey, in 1831, to the memory of a granddaughter of the Duke of Kent, on the site originally occupied by the Hill House. Thus are the pleasure-grounds at Wrest connected by a great number of monuments and various masons' work with many important events in the lives of the De Greys and others for centuries past. That this feature is so prominent an one is my excuse for alluding in these pages to some of the more interesting.

By proceeding a short distance to the left of the sundial, a circular pond is seen, its surface covered with Water-Lilies, and in the centre a figure of Atlas. The immediate surroundings of this pond are just as they would have been had the landscape-gardener embraced an old existing orchard when forming his pleasure-grounds. There are two capital trees of the Medlar, some of the Mulberry, and Apple-trees; and beside them Purple Beeches, the Sequoia already described, Elms, and Chestnuts; also a large

clipped Yew-tree that perfectly represents a Grenadier's "bearskin."

Close to this spot is the pretty little round bridge shown in our photograph (fig. 123, p. 377). It is a feature in a landscape similar to the picture on the famous Willow-plate. The bridge may be seen in the photograph, likewise the

another (possibly on account of its privacy) is known as "My Lady's Canal." And close by, in a circular space beneath lofty Chestnut-trees, are four stone altars, quite moss grown, and much wasted by exposure and age. They are believed to be genuine antique Greek altars, and an inscription in Greek signifies that they

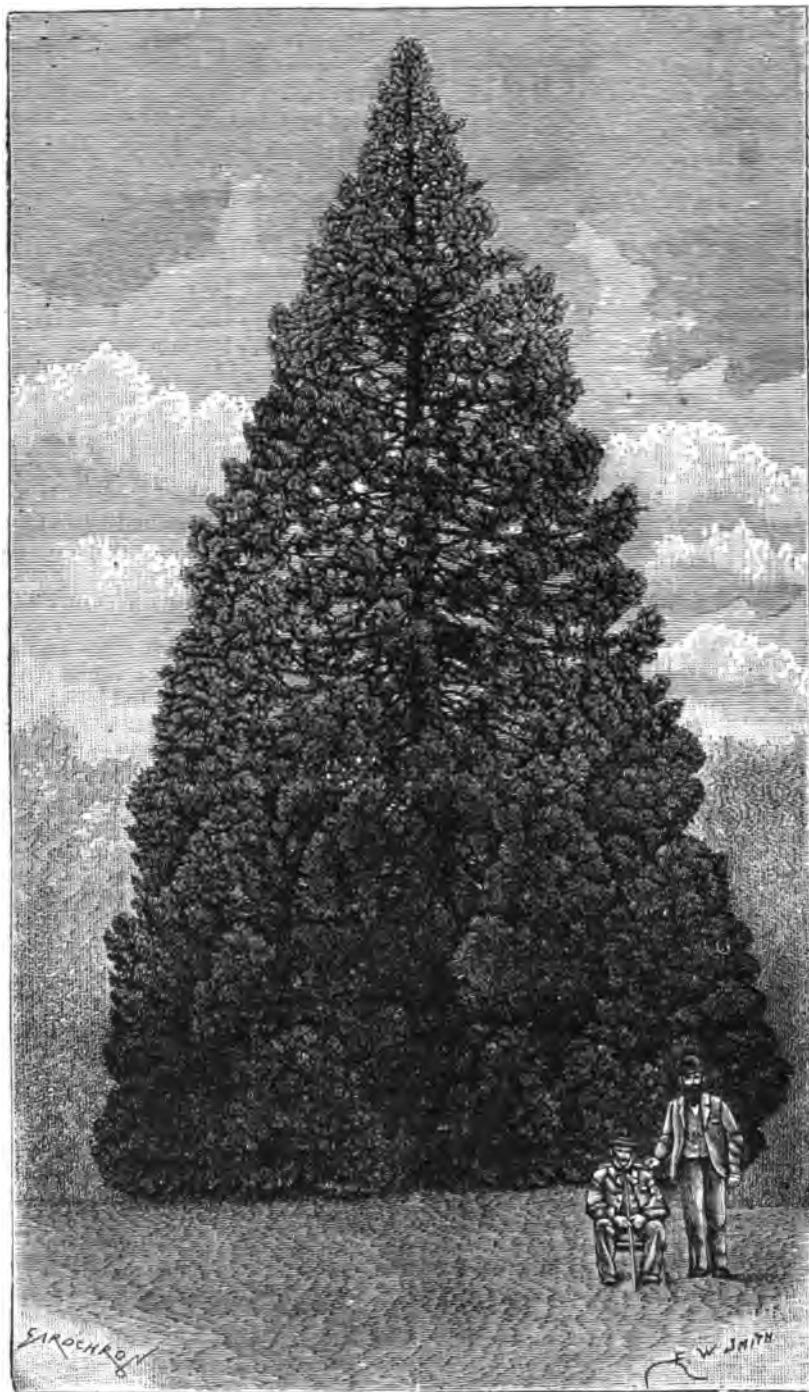


FIG. 121.—THE SEQUOIA GIGANTEA AT WREST PARK, (SEE P. 373.)

Mr. Ford, the late gardener at Wrest Park, and who is seated in the foreground, has carried the plant many times from the conservatory to the mansion, and vice versa.

Hazel, that instead of the Willow overhangs the water. On the same side of the water as the Hazel, there is an imitation Chinese Temple, designed by Sir W. Chambers.

In this same side of the shrubbery or wilderness, enclosed by very high, closely cut Yew-hedges, one comes across unsuspectingly, an oblong sheet of water which for some reason or

were raised to the memory of Diogenes, the son of Jupiter. Before crossing to the other side of the wilderness, the visitor passes the pavilion directly in front of the house, but one-half mile distant.

Instead of describing the pavilion, mention must now be made of a serpentine river, three-quarters of a mile in length, and supplied by a

spring that rises close to the old Bath House. This river there seems little doubt was made by "Capability" Brown, but it is difficult, yea impossible now, to ascertain just how much of the design of these gardens was his.

Gaining the other side of the wilderness, there is a tablet which Henry, Duke of Kent, caused to be put there "in memory of Thomas Hutton, Esq., of Somerset House, who often took great delight in this place, and whose company was always useful and agreeable to his friend, Henry, Duke of Kent."

If a peep be taken out into the park at this spot, there may be seen the finest Oaks on the

Between this green and the Orangery is what is known as the American-garden; but to be worthy of Wrest, it needs to be overhauled and fresh planting done.

In the Orangery are wintered some magnificent trees in tubs; each of them weighs about 1 ton, and in the summer they are taken out-of-doors and placed on either side of the path which faces this building. Some of these trees in their summer quarters may be seen in our photograph (fig. 124, p. 377). All of them are in a very healthy state. Some were purchased from France when the effects of King Louis Philippe were disposed of.

temple is formed of knuckle-bones, teeth, and pebbles, laid out in a design which radiates from the centre of the building.

A USEFUL MACHINE.

In large grounds where there are numerous deciduous trees, and there is much "leafing" to be done in the autumn over the mown grass, Mr. Mackinlay's method of fixing a cart upon a good-sized roller instead of upon wheels, is capital. It makes no "ruts," but the roller instead much improves the grass.

Including water and shrubbery, the gardener at Wrest has about 150 acres under his



FIG. 122.—THE GARDEN ON THE SOUTH FRONT, WREST PARK. (SEE P. 373.)

place; some of them of great girth and very old.

A BOWER OF LIMES.

This was something novel to me, though I have heard of others, one of which is also in Bedfordshire. A bower of Lime-trees, all of them trained and tied-in each year, and growing over a path for a distance of about one hundred yards. How much time must be spent in tending the trained and clipped trees at Wrest!

BOWLING-GREEN AND ORANGERY.

Emerging now from the wilderness, I came upon a beautiful piece of lawn. This was the bowling-green, and adjoining is a banqueting-house, with handsome portico and balustrade.

A GIGANTIC HEDGE AND AN OLD BATH.

At the back of the orangery is an old Roman bath-house, and its immediate surroundings is enclosed by a most remarkable Yew hedge, very high, and in some places 20 feet wide. It is said to be 350 years old, and has sent out branches to the south which have subsequently taken root and grown vigorously. The south side of the hedge is regularly clipped, and it occupies the attention of two men for a period of three weeks.

A rustic bridge, and another Chinese temple are objects of interest, near to the bath-house, and about the rustic bridge is a kind of informal rockery, where Ferns are quite in keeping, and a pretty nook it is. The floor of the Chinese-

supervision, and ten miles of gravel walks to maintain in good order.

THE KITCHEN GARDEN.

The large kitchen garden is divided into two parts, and each is enclosed by excellent walls, which are covered with fruit-trees. There are numerous Peach-trees on those with a southern aspect, and a capital crop of fruits will be obtained from them this season. On one of the west walls, the fruit-trees are Plums, and on the rest, Apricots, Cherries, Pears, and cordon Apples. A third piece of ground, also enclosed by walls, is a fruit garden exclusively. Among the bush fruits, red and white Currants are trained into standards, and, as Mr. Mackinlay

says, they are very ornamental, and the fruit is kept perfectly clean.

I remember to have seen standard Currant-trees in Sir Chas. Isham's garden at Lamport, where Mr. Mackinlay was formerly engaged. The kitchen garden at Wrest looks capital at present, and all of the crops show that much care is bestowed upon them. In the *Gardeners' Chronicle* for February 11, 1899, p. 92, a photograph was reproduced showing what a magnificent crop of Onions had been obtained by Mr. Mackinlay from autumn-sown plants, subsequently transplanted in March. The ground was measured, and the Onions weighed, and it was found that the crop was one of 12 tons to the acre.

There are twenty-one glasshouses at Wrest, including three Peach-houses, five vineries, and numerous plant-houses. The crops of fruit look most promising, and there is usually a grand lot of Tomatos obtained from plants grown out-of-doors. Melons are cultivated in large numbers, and Mr. Mackinlay's favourite variety for culture in house or frame is Sutton's A1.

This article is already longer than was intended, or many more interesting details of Wrest might be written. Some of them possibly will be told on a future occasion. It is pleasant to record that so magnificent and historical residence and garden belongs to a nobleman and noble lady to whom its care is a real pleasure. They have an excellent curator in their present gardener. Mr. Ford, who was gardener at Wrest for half a century, and who was granted a pension by Earl Cowper three or four years ago, is still living in a cottage in the park, very close to the gardens that were his care and delight for so long a period. R. H. P.

ALPINE GARDEN.

CHOICE ALPINES AT THE TEMPLE SHOW.

It is quite natural [and most desirable] that at the great show in the Inner Temple Gardens each year should be seen an array of choice or rare plants, which are very seldom seen at other horticultural exhibitions. It is equally natural, owing to the great extent of the display and the shortness of the time available to the visitor, that only a comparatively few of the plants can be inspected. The following is not an attempt to touch upon all the scarce plants, but briefly to note some at least of the rarer ones.

Two plants were there, viz., *Eritrichium nanum* and *Primula Reidi*, which appealed to me as the very embodiment of beauty among alpine. The former is a member of the great Boraginaceae family, yet as far removed externally from the officinal herb as it is possible to be; but in the exquisite beauty of its Forget-me-Not-like flowers, I found an indescribable charm, yet is it but a mere fragment of the great carpet of such plants as thrive in the rarified atmosphere of the elevated regions on the snow line. The dense habit of the plant, and the covering of soft hairs, perhaps make it a miffy plant in our dense atmosphere. As by a coincidence, this alpine gem appeared at the Temple, where two attempts were made to furnish miniature rockeries with miniature alpine, namely, by exhibitors from York and Guildford. In each case nice examples of the plant were employed. Planting in very firm and gritty soil, tightly squeezed sideways between pieces of rock, is about the best we can do for this plant in this country. The *Primula Reidi* may be likened as regards its flowers to a dwarf *P. sikkimensis* of pure white, but the comparison goes no further, for the almost shaggy leaves of this remarkable species may easily be taken for those of a Hawkweed. It is a very remarkable combination,

and the drooping, nodding blossoms compel admiration from the beholder. I regret that I am unable to offer any advice as to the treatment of the plant, and I do not know if it is quite hardy, or a true perennial, or like *P. sikkimensis*, biennial. If a plant can be got to form seed and to grow like the last-named, gardens will be the richer for a beautiful plant.

A plant of *Edraianthus dalmaticus* received an Award of Merit. This rare species has never before been seen in such profusion, and the large group of it in full flower well showed its value as a decorative subject. A more extensive root-run than that which suits the preceding plant—say a deep chink in the rockwork, some gritty and rich loam in which to plant, and sufficient space for the more or less procumbent branches to trail along.

Lewisia rediviva is another rare and pretty alpine which few growers of hardy plants expected to see. The great mass of the plant failed to gratify me, for open flowers were few in number owing to lack of sunshine. The plant should be treated more or less as a succulent, and planted in dry, rocky crevices, or tightly wedged into the walls.

Androsace sarmentosa villosa constitute, with *A. s. Chumbyi*, and the type, a trio of which the first named is much the best. The flowers are richer coloured, and also nearly self coloured, and very freely produced. This plant was found in the Guildford rockery. Its cultivation is easy.

Anemone palmata alba was, perhaps, one of the finest of the varieties shown, and one that is more frequently found in gardens than some others. The creamy white blossoms are showy, and in every way welcome in the spring months. The plant has a preference for rich soil, and plenty of decaying leaves. Planted rather deeply in such material, and in a shady spot, the plant grows very freely.

Aquilegia Stuarti is a great rarity, and a lovely plant of a free-flowering habit, of which half a dozen or more, planted in a clump together, would be very attractive. So good a plant is deserving of every care, and if seeds can be obtained from home-grown plants, the plant may become more plentiful in gardens. Columbines decline in vitality after a few years, therefore the greater reason for proper care being bestowed on them.

Arnebia echioides is a showy and desirable plant, and one of the earliest in the year to show flower. The plant is almost perpetually in bloom, for soon after the spring flowers fade another lot appear, the flowering often extending into the autumn. For this reason, and for the hardiness of the plant, and the ease with which it may be grown, it will be welcomed in many gardens. It is interesting by reason of the dark spots on the petals appearing and presently vanishing.

Primula elatior cœrulea, if not a true or a rare alpine, is certainly an interesting plant, that is not often found in gardens. The plant shown was a small one and rather poorly grown, and the seed-blossoms were long past their best. *Oxalis monophylla* is a lovely plant, which, if seen when out of flower, might be taken for *Trifolium polyphyllum*. As a good rockery plant, and not a weedy subject, as many of the *Oxalis* become, it deserves notice. The plant is not plentiful in gardens, yet it has the merit of being quite distinct. A year ago it might have been seen doing well in the Kew rock-garden. The large flowers appear in considerable profusion. E. Jenkins.

IRELAND.

FLAX INDUSTRY.

THE decay of the cultivation of Flax in the sister Island has been the matter of national regret for many years past, and we are glad to notice that a conference was held in the Chamber of Commerce at Belfast last week, between cultivators of Flax and spinners, under the auspices of the Irish Agricultural Organisation Society. The conference was held for the purpose of considering and formulating recommendations for the consideration of the Depart-

ment of Agriculture and Technical Instruction, with a view to the improvement and revival of the industry.

The causes which had led to the decline of the industry were difficult to define, but the chairman thought that it was chiefly due to foreign competition, the result of organised effort on the part of the foreign producer. The general opinion seemed to be in favour of some intermediate body between the farmers and the spinners. Measures will be taken shortly to ascertain the general opinion on the subject.

CULTURAL MEMORANDA.

HIBISCUS COOPERI.

THIS pretty plant with variegated leaves was once a common inmate of our stoves, but is now seldom seen in good condition. Large specimens used to be exhibited amongst stove and greenhouse foliage plants by gardeners, and it would be hard to surpass these giants for rich coloration by anything in favour at the present day. Where plants with variegated leaves are cultivated, *Hibiscus Cooperi* should be included, the treatment afforded *Codæums* suiting the plant. The plant is not injured by exposure to full sunshine in the hottest weather, and without it the rich leaf-colouring is not well brought out. Cuttings of the shoots strike very readily, and when rooted they should be potted-off in rich sandy soil, and grown on in a warm, moist, low house or pit.

CLENKOWSKIA KIRKI.

This is a handsome flowering stove-plant with fragrant rose-coloured flowers, and is well worthy the attention of the gardener who would cultivate something out of the common run. The plant is not free-flowering, but its magnificent leaves make up for this. A house having a moist, genial atmosphere suits this plant whilst it is making its growth; and when the flowers appear, it should be placed where light and indirect sunlight reach it. A compost consisting of equal parts of turfy-loam and peat, with coarse sand and small pieces of charcoal, suits the plant admirably. Whilst making growth afford water abundantly, and occasionally manure-water made from sheep or deer dung, or that from the cow-house. A partial rest should be gradually afforded the plant when flowering has ceased by withholding water; but at no season should a plant become dust-dry at the root.

CORDYLINE GUILFOYLEI.

The combination of colours in the leaves of this plant is extremely pleasing; the ground colour being light green, with stripes of red, rosy-pink, and straw-colour; and nicely grown plants in small pots are very effective objects on the dinner-table. *C. Guilfoylei* is not a robust grower, still, excellent specimens may be grown if attention be paid to the following details, viz., do not afford the plant too large a pot; use a sweet porous soil, and a well-drained pot. Water should be carefully afforded at all seasons, but more especially during spring and early summer; and afford some mild form of manure whilst growth is very active. The plants should be screened from strong sunshine, and grown under general stove treatment. H. T. Martin, Stoneligh Abbey.

BULBOUS PLANTS.

SPEKELIA FORMOSISSIMA. — This, the old "Jacobæa Lily," is just the sort of plant to interest the amateur who possesses a greenhouse wherein to grow it. The leaves are numerous, green, and tapering. The flowers are solitary, a foot or more high, rich, bright crimson in colour, and measure half a foot across. The three upper petals are recurved and equidistant; the three lower are rolled together in the basal half, forming a tube which encloses the stamens and style. The



FIG. 123.—CHINESE BRIDGE IN THE PLEASURE-GROUNDS, WREST PARK. (SEE P. 374.)



FIG. 124.—THE ORANGE-TREE WALK AT WREST PARK. (SEE P. 375.)

peculiar form and rich colour render the flowers very attractive. The plants delight in a lasting compost of a light, porous character, and grow best when several are planted an inch apart in a fairly large (say 8-inch) pot. They will start into growth early in the new year, the flowers following in March or April. They may be grown well under a system of water-culture, such as is adopted with Hyacinths, and used for the decoration of apartments, windows, &c.; but only strong, well-ripened bulbs produce satisfactory flowers grown thus, and these are practically worthless after flowering once. The plant has been frequently described as hardy; this may be the case in some favourable districts and seasons when the bulbs are quite at rest, but the leaves will not stand 1° of frost unharmed. There are three varieties of this plant, of which I know but two: glauca, with glaucous leaves, and smaller, less showy flowers; Karwinski, with paler, but equally large flowers, which are margined and banded with thin lines of white. Neither is an improvement on the type from the gardener's point of view. The plants flower with greater surety when the bulbs have been well ripened in a warm aspect under a south wall. *Geo. B. Mallett.*

CAMASSIA.

These are excellent plants for the well-drained herbaceous border, and for naturalising in grass and the approaches to woodland. The tall spikes of the cream-flowered *C. Leichtlinii* fully 3 feet high, and the pale blue *C. Cusicki*, make a fine display planted in groups of a dozen or more in some close herbage, or at the back of the herbaceous border. They also do well planted in the front of shrubby borders in well-tilled soil, the flowers showing up well against a rich, green background. *C. esculenta*, a dwarfier plant with rich blue flowers, and *C. Frazeri*, with still deeper blue flowers, are particularly suitable for the herbaceous border. Once planted in a good soil, they give but little trouble for years, not even stakes being required in sheltered spots, the spikes being quite stout enough to support themselves. Some strong plants produce two to three spikes each, keeping up a display of flowers for several weeks in May and June. They may be propagated by seeds and offsets; the seeds should be sown as soon as they are ripe, on a warm border which is shaded during the middle of the day. The plants themselves grow best in slight shade, though they will do fairly well in the open. They must have plenty of water when in active growth, or the spikes will not develop fully, and this is especially the case with *C. Cusicki*, which seems to be less capable of standing drought than the others. They are all cheap enough to admit of extensive planting, costing but a few pence each, *C. Leichtlinii* and *C. Cusicki* costing rather more. Their hardihood and love for slight shade should make them useful plants for brightening up small recesses among shrubs and the many odd corners which occur in most gardens. *G. B. Mallett.*

MANURING ORCHARDS AND FRUIT TREES.

THE following interesting facts have been derived from a lecture by Prof. Voothees, delivered before the Massachusetts Horticultural Society. The lecturer stated that his main purpose was to show the necessity of studies and investigations concerning the food requirements of the various fruits, rather than to point out methods of practice that shall be economical and systematic.

Crops differ in their requirements.—It is obvious that such specific results as have been obtained concerning the needs of general farm and of garden crops, such as grain, grass, and vegetables, for specific plant-food elements cannot be applied with any degree of accuracy to fruit crops, particularly the larger fruits, as Apples, Pears, Peaches, Grapes, and Plums, because they differ from the cereal grasses and garden vegetables, first in their habits of growth, second in the character of their

produce, and third in their relation to soil exhaustion.

In the first place, farm and garden crops, as a rule, require but one year for the entire processes of vegetation and maturation. Fruit crops with but few exceptions, continue their vegetative processes for at least three years, and with many kinds much longer; while after the fruit-bearing period begins, the vegetative processes do not cease, but are coincident with the growth and ripening of the fruit. In the second place, the product of the harvest, namely, the fruit, differs very materially in its character from that of ordinary farm and garden crops, which mature their products and die in one season, because a whole season is required for its growth and development; that is, it is necessary that there shall be a constant transfer of the nutritive juices from the tree to the fruit throughout the entire growing season, while the growth for each succeeding year of both tree and fruit is dependent upon the nutrition acquired and stored up in buds and branches, as well as upon that which may be derived directly from the soil. In the third place, the relation of fruit-growing to soil-exhaustion is very different from that in general crop culture, because in orchards, and for individual fruit trees, there is an annual demand for specific kinds and proportions of soil ingredients; it is really a continuous cropping of the same kind. There is no opportunity, as in the case of vegetable crops, to correct the tendency to exhaustion by a frequent change of plant, or the frequent growth of those which require different kinds and amounts of plant-food constituents; and not the least important factor having a different root-range in the soil.

Elements of Plant-food needed by Fruit-trees.—In studying methods of manuring orchards, it must at once be admitted that the general principles of manuring which apply to fruit-trees, apply quite as well to all other garden crops; that is, the essential constituents of manures must be the same. A fruit-tree will not make normal growth in a soil destitute of nitrogen. That nitrogen encourages leaf-growth is a recognised fact; and since trees grow by means of both leaf and root, the presence of nitrogen is required in the soil, in order to promote the growth, and extend the life of the tree. It is very evident, too, that potash is an essential constituent in the growth of fruits, not only because it constitutes a large proportion of the ash of the wood of the Apple, Pear, Cherry, and Plum, and more than 50 per cent. of the ash of the fruits of these trees, but because it forms the base of the well-known fruit acids; and in order to nourish a tree properly, as well as to ensure proper ripening, phosphoric acid is very essential, though possibly of less relative importance than for some other crops which are grown specially for their matured and ripened seed. It is also a matter of common observation, that in the production of stone-fruits particularly, lime is an important constituent. Its function seems to be to strengthen the stems and woody portions of the tree, to shorten the period of growth, and to hasten the time of ripening.

Fruit-trees growing on soils rich in lime show a stocky, sturdy, vigorous growth, and the fruit ripens well; while trees growing on soils which contain but little lime, particularly the cold clays, appear to have an extended period of vegetative life, the result of which is that the wood does not mature, and the fruit does not ripen properly.

The Need of Manure for Fruit-trees.—It is argued by many persons that fruit production is quite similar to growing timber trees; that the question of soil exhaustion is not a matter of very great importance, provided the soil is well cultivated, and that all soils contain sufficient quantities of good elements to ensure the relatively small available supply required from year to year.

It is admitted that on soils of good mechanical condition, well drained, and cultivated, which are naturally adapted for fruit as well as other crops,

because well supplied with the essential plant food constituents, namely, nitrogen, phosphoric acid, potash, and lime, the exhaustion arising from the continuous removal of crops may not become apparent for a long time; but it should be emphasized that it is only upon soils which possess these characteristics that the growth of fruit, even poor fruit, can be obtained for any considerable period, without the application of suitable manures.

Reference was made to a series of experiments that had been conducted at New Jersey Station with Peaches, during the ten years 1884—1893 inclusive. Each experiment consisted of thirteen trees, and the average yield was reckoned in the number of baskets of fruit per acre.

AVERAGE PRODUCE OF PEACHES PER ACRE.

Plot 1. Without manure	60.8 baskets.
Plot 2. With complete chemical manure...	183.4 ..
Plot 3. With farmyard manure	194.7 ..

The following results show the relative yield of Peaches in the unfavourable season of 1889, on the same plots:—

Plot 1. Without manure	10.9 baskets.
Plot 2. With complete chemical manure...	152.5 ..
Plot 3. With farmyard manure	162.5 ..

These results show that the yield of Peach-fruit was very materially increased by the use of manure, either in the form of artificial or natural manure; and the difference in yield derived from these two forms was very slight, indicating that very much smaller amounts of actual plant-food in quick-acting materials were quite as useful as larger amounts in the less available form in which the plant-food exists in natural manure products.

During the ten years over which these experiments extended, the farmyard-manure plot received eight times as much nitrogen, nearly four times as much phosphoric acid, and more than twice as much potash, as the plot manuring with the artificial fertilisers; and yet, as shown in the foregoing figures, the yield of fruit for the ten years was but 113 baskets greater, or eleven baskets per year extra.

In the next place it is interesting to observe—and it is a point of considerable importance—the effects of an abundant supply of plant-food in overcoming unfavourable weather or seasonal conditions. The year 1889 was an extremely unpropitious one to the crop of Peaches throughout the Jersey State. In the experimental grounds the unmanured plot yielded about eleven baskets per acre only, while the farmyard manure plot and the artificial manure plot both gave a yield exceeding 150 baskets per acre. The manure strengthened and stimulated the trees, and enabled them successfully to resist such conditions as were fatal to the crops receiving no manure. The point is one that is seldom considered in calculating the advantages to be derived from proper manuring, though it is of extreme value, since the expenses of cultivation, pruning, and interest on investment are quite as great in one case as in the other.

Another experiment reported from the Cornell Station showed that the plant-food contained in twenty crops of Apples of 15 bushels per tree, and thirty-five trees per acre, taking the leaves of the trees also into account for the same period, amounts in round numbers to 1,337 lb. of nitrogen, 310 lb. of phosphoric acid, and 1,895 lb. of potash. These amounts of plant food are larger than would be removed from the soil by the growth of twenty average crops of Wheat.

The Experiences of Practical Orchardists.—The results under this head are instructive as showing, first, that American orchardists do recognize the necessity of a liberal feeding of their fruit plantations; and second, that the rate of profit, other things being equal, is largely dependent upon such a practice, though the methods in use are widely different, and in many cases unsystematic and irrational.

A system of manuring for cultivated orchards may thus shortly be outlined—to provide vegetable matter and to improve the physical quality of poor

soils, apply farmyard manure once in four or five years, in autumn or winter, at the rate of from five to ten tons per acre. To aid in the decomposition of vegetable matter, and to ensure a sufficiency of lime as plant food, apply lime at the rate of twenty-five bushels per acre once in five years. To provide in addition an abundance of all forms of available plant-food at the time needed for the development of the tree and fruit, use chemical fertilisers containing nitrogen, phosphoric acid, and potash. Chemical fertilisers of the proper kind have the advantage of not only supplying plant-food early in the season, but they enable trees to make their growth during the first part of the season, and ripen their wood thoroughly before winter. The growth is, as a rule, much more firm than that obtained by the use of stable-manure. In fact, chemical fertilisers should be used as correctives, since, if those containing potash and phosphoric acid are added to the soil that has been highly enriched with stable-manure, or that are naturally rich in organic matter, they will have a tendency to make new wood more firm and compact, and thus increase the hardness of

deep claret-coloured disc, surrounded by a white zone, the apex being bright rose-colour. It is one of the most distinct and showy hybrid *Dendrobium*s yet raised.

HARDY PLANT NOTES.

WHETHER it is due to the hot sun of last summer, or to some favourable conditions of winter wet, and temperature, most of the hardy plants which flower in late spring are surpassing all my previous experience of them. Out of many good varieties of *Iberis sempervirens*, one known in gardens as *I. corneifolia*—the name is not botanical—flowers later than most, and for the size of the truss and the thick, bright green leaves, is excellent. Old plants become straggling and patchy, but those two years old from cuttings are now a mass of flowers. *Heuchera sanguinea* is a plant of which many complain as flowering badly. It always flowers well here in its proper place, which is one sheltered from cold winter winds. I have before called attention to the merit of some of its hybrids, which are far more robust and free flowering than the type. The first

doors; and *Iris tingitana* has made the first flower I ever saw on it here in twenty years. These instances show something unusual in the meteorological conditions of the past season. *Polygonum sphaerostachyon*, of which I have several colonies, is everywhere flowering well, a month or two earlier than usual, and looking much healthier. All the Flag Irises, including especially *I. sibirica* and its hybrid varieties, are unusually floriferous.

Amongst rock plants, *Ethionemas grandiflorum*, *coridifolium*, and *pulchellum*, passed through the winter out-of-doors better than usual; so did the alpine Pinks. Out of a hundred plants of *Dianthus neglectus* hardly one has damped off, and they are now in flower, including some very interesting hybrids, of which *D. neglectus* is the seed-parent. *Lithospermum prostratum* at the end of winter looked brown and dead, but it has now, at the beginning of June, entirely recovered and is quite crowded with flowers; and I may say the same of *Choiya ternata*, which at its usual flowering time looked very unhappy.

Mertensia sibirica is a plant not to be neglected for the mixed border. Some think it a late-flowering and inferior imitation of *M. virginica*; but though the flowers are smaller, the habit is very superior to that of the earlier species. If room is given to it to grow, without being smothered on any side, it makes a very well-shaped plant of neat glaucous foliage, with an abundance of flowering shoots covered with flowers of a pretty porcelain blue, from nearly the ground to a yard in height. *Asphodelus ramosus* is hardly so often seen as it deserves. Where *Eremurus* will not flower it is not a bad substitute, and its tall branching panicles of white and brown flowers, have a stately look in May. It is easily kept in bounds, and seems to thrive anywhere, self-sown seedlings coming up round it in abundance.

Of the Vetch tribe, one of the best, and unreasonably scarce in gardens, but now just beginning to flower abundantly here, is *Lathyrus roseus* (M.B.), of the Caucasus. It does best in a moist open soil and a shady situation, and the stalks, which at about 2 feet high, turn horizontally, spread out into a canopy of most beautiful clear green, with abundance of bright rose flowers. It is seldom to be found in nurseries, as it has to be grown from seed, which develops very slowly. C. Wolley Dod, Edge Hall, Malpas, June 10.



FIG. 125.—*DENDROBIUM* × *DALHOUSI-NOBILE*.

the trees, and will both render the fruit buds less susceptible to damage from sudden atmospheric influences, and assist them in withstanding injurious insect attacks. J. J. Willis, Harpenden.

DENDROBIUM × *DALHOUSI-NOBILE*.

THIS fine hybrid was shown by Sir Trevor Lawrence, Bart. (gr., Mr. W. H. White), at the Royal Horticultural Society on June 5, when the Orchid Committee voted it an Award of Merit, although many of the expert orchidists who saw it, thought, in view of the distinct character of the cross, as well as on account of the beauty of the flowers, it might well have been honoured by a First-class Certificate. The cross was originally made by R. Brooman-White, Esq., of Arddarroch, the species employed being *D. Dalhousianum* (*pulchellum*, Roxb.) and *D. nobile*.

Although the inflorescences on the plant exhibited were few-flowered, there was indication in the attempted racemose formation of the flower-spikes that ultimately the plant may bear flowers in the same way as *D. Dalhousianum*.

The growth of the plant resembles *D. Dalhousianum* in a great degree. The flowers have the sepals and petals white at the base, the outer two-thirds tinged and veined with rose-purple. The broad shell-shaped labellum, has a bluish-white base, a

that came in my garden in a mysterious way (for neither parent grew near it) was *H. sanguinea* × *H. cylindrica*. The marks of both parents are evident. The abundant and persistent flowers are of a greenish pink, and many to whom I have sent it admire it more than I do; but it produces fertile seed, and the progeny of this is now flowering, being of many shades from deep scarlet to white, and of very robust habit, with stalks two feet high. The hybrid known in nurseries as var. *briseiformis*, which is *H. sanguinea* × *H. hispida*, makes very tall and elegant panicles of varied pale pink. These hybrids never seem to suffer in those positions in which the type comes out of winter quite crippled.

Another very good May perennial is *Delphinium trollifolium*, making tall branching spikes 5 feet high, several on a plant. It must have moist soil and partial shade; and slugs are hard upon it. It has flowered remarkably well this spring. The varieties of *Aster alpinus*, which are generally very troublesome here, either damping off in winter or getting their eyes eaten out by slugs, are all flowering abundantly, even the variety *speciosus*, which is generally very shy; and the white variety, which often makes only distorted flowers, is now full of well-formed and healthy blooms. *Primula capitata*, for the first time since I had it, has lived through the winter out-of-

MARKET GARDENING.

BOUVARDIAS.

THESE are very useful either for summer or winter flowering, and some of the varieties may be had in flower throughout the year; but to do this, successive batches must be grown, and the plants stopped at various periods. The cut-back plants of the previous season's propagating will flower first. Some may be grown on without any stopping, and the thin ones stopped once, or more as required. When planted out in a warm border, some varieties will grow freely and branch out, and keep up a succession of bloom, which will be found very useful for cutting from, and when grown in pots the period of flowering will depend a good deal upon how the plants are treated. They require a good rich compost, and after the pots are filled with roots, manure may be used liberally; but care must be taken not to over-dose them, also that they are not allowed to get too dry, especially after the application of manure, the fine thread-like roots being easily damaged, and once they get a check it takes a long time to get them to start into healthy growth again. Insect pests are often troublesome, but the frequent use of clear soot-water with the syringe, will go a great way towards keeping them off, and will also stimulate the plants; it should only be used in the evenings or after the sun is off. The Bouvardias succeed best when fully exposed to the sun. They are frequently grown in too much heat; it is only when required to flower in

mid-winter that much warmth is necessary. A very slight frost will destroy them, but they may be grown in cold frames, or even in the open during the summer and autumn.

The present is a good time for propagating; the short cuttings from cut-back plants are the best, these root freely in the stove propagating-pit. They may be stopped once before they are potted off, and afterwards as they require it. To make good plants they must be stopped several times, and care should be taken to stop all the shoots at the same time. Only the two basal leaves should be left at each stopping.

Varieties are not numerous, about forty to fifty would exhaust the list, and of these I should only recommend about a dozen; and if it was not for keeping up a succession of bloom, a less number would suffice for ordinary purposes. Of the scarlets, President Cleveland is such a long way ahead of all others, that it seems strange to find Hogarth, elegans, or Dazzler, in cultivation. President Cleveland will flower almost successively through the year, or, at any rate, at all times that the others can be had in bloom. Of pinks there are several different shades: Mrs. R. Green deserves first place; Priory Beauty has a deeper shade, and finds favour with many; and Reine des Roses is a good one, especially for early flowering. Of whites, there are several widely distinct varieties: as a pot-plant for early flowering, candidissima may be recommended, being dwarf and compact, and very free-flowering. For cut bloom, Humboldtii corymbiflora, or the newer var., grandiflora, is very useful. The same plants will flower from June until November, but it does not flower much later; and to flower young plants they must not be stopped so frequently as any of the other sorts. Vreelandii, of similar habit to Hogarth, flowers well at mid-winter; jasminoides is also a useful white and very sweet-scented; alba odorata jasminiflora, which has large flowers, the tube and under-side of the lobes having a shading of pink, is a newer variety of great merit. Of the double varieties there are only three that can be recommended, they are Hogarth flore-pleno, scarlet; President Garfield, pink; and Alfred Neuner, white. The yellows, both single and double, require much improvement before they can be recommended. A. Hemaley.

THE WEEK'S WORK.

PLANTS UNDER GLASS.

By T. EDWARDS, Foreman, Royal Plant Gardens, Frogmore.

Achimenes.—Any of these plants growing in baskets may now be removed to an intermediate house, or suspended from the roof where they are intended to flower. Apply weak liquid-manure twice a week. Achimenes in baskets need no stakes to support the stems, as drooping stems show off the flowers with more advantage when allowed to grow naturally. Those growing in pots or pans, and intended to stand on a stage, should be neatly tied to stakes that are tall enough to hold them up when at their full growth. Let the plants stand near the glass in an intermediate-house.

Gloxinias.—As these come into flower may also be removed to cooler quarters, for if they are allowed to remain in the stove the flower-stems become drawn. Manure-water may be afforded frequently to plants of flowering age, and seedlings repotted for late flowering. The seedlings, which appear at a later date, will make good tubers for next year's flowering; they can be planted out in a spent hot-bed frame, and treated like stove plants. Select the best varieties as they come into flower, and throw away those that are poor in colour, in form, or in substance.

Torenia, Streptocarpus, Impatiens, and similar plants, will now succeed with less heat, and remain longer in flower in the conservatory or intermediate-house.

Euphorbia pulcherrima (Poinsettias).—Continue the propagation of this plant as fast as cuttings become fit to be taken off, and keep the stock

plants in cool pits fully exposed to the sun. A very small quantity of water is necessary, and if strong cuttings are put in at the right time (before they become drawn), with proper heat, and due attention to shading, syringing, &c., there is no plant that is easier to root.

Chrysanthemums.—Push on with their repotting, as a week or two lost now cannot be recovered during the season. Any plants that show flower-buds should be cut down to about 2 inches from the pot, it being useless to pick off the flowers, as some varieties, such as the Vivand Morel family, will continue to form buds, but they will grow clean away after cutting down, and supply dwarf plants with good flowers. Prepare a hot-bed for cuttings by throwing up a heap of stable-manure and leaves in equal parts, affording it water if the materials are dry, and turning over and mixing as soon as fermentation has been set up. After two or three days the material will be in a fit state for filling the pit without any danger of violent over-heating occurring. In filling the pit, shake all the materials together, and make firm by trampling them, and fill the pit to within 6 inches of the glass, and finally cover with an 8-inch layer of spent Mushroom-bed for plunging purposes. The "tops" of Chrysanthemums, inserted singly in small pots, make the most useful plants for decorative work, but the cuttings must not be allowed to flag, and the rooting must take place in a fortnight or three weeks, which, with a brisk bottom-heat and frequent sprayings of foliage and heavy shading, is not difficult. No air will be required, but if hot weather follow, apply water to the shading with a rose watering-pot three or four times a day. This will afford heavier shade, and prevent evaporation, and less syringing will be necessary. When the roots reach the sides of the pots, afford a small amount of air; allow all the indirect light that is possible, but not direct sunshine. When well rooted, pinch out the points of shoots, which, if it be done at the proper stage before potting-on, the little plant will be furnished with seven or eight shoots. Gradually expose the plants to the air; remove to 6-inch pots, using rich soil, and plunge out-of-doors in coal-ash beds. These plants when in flower will measure from 2 to 3 feet in height, according to variety, and one flower only should be left on each shoot, though Pompons and single-flowered sorts are only partially disbudded.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Coleworts.—For an early supply of heads sowing should be made at this date on beds which have been deeply dug and left rough for a few days, which should be levelled, trodden evenly, and raked smoothly, before the seed is sown. Want of success with Coleworts is often due to the impoverished state of the soil of the seed-beds. Good, sturdy, and rapid growth is only to be obtained under good conditions, and if the seed-beds were dug in the early winter so much the better. As large sowings are not required, the seed may be sown thinly in shallow drills, drawn at about 6 inches apart, but for the later and larger sowings the seed should be broadcasted, lightly covered; and subsequently the ground should be slightly beaten with a spade. Should dry weather prevail, the beds should be matted over, and the mats wetted every morning and evening till germination has taken place, when they should forthwith be removed. For these sowings I would recommend the variety Rosette or London.

Brussels Sprouts.—The plants raised from a sowing made early in April may now be transplanted, and if rain does not fall in quantity sufficient to settle the soil about the plants, water should be afforded them, also to the seed-beds an hour before drawing the plants. Land in good heart may need no additional preparation than that afforded at the winter digging, but a poor soil may need a dressing of artificial manure, guano, &c. Brussels Sprouts, like all Brassicas, succeed in firm soil, and do badly in a loose one; hence the necessity to trample the quarter evenly and regularly all over previously to setting out the plants. In good land a distance of 3 feet should be allowed between the rows, and 18 inches from plant to plant. When drawing the plants a small fork should be used, the better to lift a ball of earth with each. Do not bury the heart of the plant in the ground when planting.

Tomatoes in Pits and Frames.—Forced vegetables being now over, the pits and frames hitherto occupied by these crops may be planted with Tomatoes, the plants being trained to trellises placed at one foot from the glass. The plants should be placed at the front part of the pits or frames, and at about 1½ ft. apart. The shoots should be loosely secured to the trellis, and kept thin, all side-shoots being removed, as with out-of-doors plants. When in full bearing manure-water afforded once in ten days will be beneficial, but it should not touch the leaves or fruits. The plants should have full ventilation by day, and at night the lights should be slightly tilted in such a manner that no draught is caused.

Capsicums and Chillies.—If plants were raised early in March, they may now require the final shift into 6 or 7-inch pots, using a compost consisting of turfy-loam and leaf-mould, with a few ½-inch bones. The potting should be firmly performed with a rammer. In fine summers these plants fruit satisfactorily if the pots are plunged at the foot of a south wall, but whenever possible they should have a place in a glasshouse throughout the summer months; the pots may be plunged in coal ashes in cold frames, and if the plants are kept well syringed, red spider or green fly will not infest the foliage. However, should any of the young stock be effected with either of these pests, the XL-All will clear them off.

Onions for pickling.—At this date Queen and Silver-skinned variety may be sown on a piece of poor ground, sowing the seeds rather thickly in very shallow drills drawn at 9 inches apart, and the bed afforded water occasionally during dry weather.

THE FLOWER GARDEN.

By J. BARNOW, Gardener to the Earl of Ilchester, Abbotsbury Castle, Dorsetshire.

Aponogeton distachyon.—The Cape Pond-weed is a decorative aquatic plant which will grow and flower freely in warm, shallow water, although the plant will grow in water 3 to 4 feet deep; but in this case its flowers are fewer, and the period of their production is shortened. The tubers or seeds, as the case may be, should be planted or dibbled in, in a part of the water that is exposed to the sun's rays for most of the day. If the water can be run off, it will be ready in a few days to plant. Imported tubers should be planted with a trowel at 1 foot apart, and then in the most favourable positions, with not more than 12 to 18 inches of water over them, a display of flowers may be obtained for eight months of the year. If seeds can be obtained it is a safe method to dibble them in parts of the pond where the water is still, and no rush occurs after rain. As places for this and other water-plants, a pond or reservoir should be made ornamental with turfed banks and suitable planting, which can be filled and kept sweet by means of proper inlets and outlets, quite under the control of the gardener. Still water, or that into which fresh water is only occasionally admitted becomes warmer than running water, and plants flower for a longer period therein. In the winter it is the reverse, and if a small current of water be admitted, the freezing of the water may to some extent be prevented. Those who have no choice in the matter, may place the tubers and seeds in lumps of stiff clay, into which some cow-manure is kneaded, which may be placed in holes in the mud, kept in position by pieces of stone. In a few weeks sufficient roots will be made as will anchor the plants to the mud. If the soil in which the Aponogetons are planted is poor, a coating of rich compost spread all over, and small stones added to keep it stationary, better results may be looked for, than if nothing had been done. Large pots or tubs may be employed for these plants, sinking these in the water, but they then need more nutriment than is the case with plants growing in pond-bottoms; and may be treated like Nymphaeas, by the tubs having 1-inch holes out in the sides so that the roots may get outside. One method of feeding aquatics is to put small bags of guano into the water at intervals during the growing season. If flowers be required late in the season in the warmer counties, and these are difficult to obtain, the plants should be rested in the month of August for a few weeks, the water being entirely drained off. Plants thus treated begin to flower as soon as water is re-admitted to the pool.

Annuals.—For autumn display a sowing may be made at this date on beds of fine rich soil, keeping the beds regularly supplied with water in hot, dry weather. *Mignonette* may still be sown.

General Work.—Let the hoes be kept going among shrubs and the occupants of the herbaceous border. When affording water to *Rhododendrons* and others planted on sloping ground, some of the soil should be drawn to the lower side of the plants, and 1 to 2 feet distant from them, and in this way the water hindered from running down hill. Afford water abundantly if it be needed, and never in dribbles, which do more harm than good. Spraying the foliage morning and evening will freshen up shrubs in droughty seasons, if in addition water is occasionally applied copiously at the root. The leading shoots of *Conifers* often get broken off owing to their succulent nature, and it is prudent to fasten them to a neat stick as growth proceeds, taking precautions against chafing the bark. Tall-growing plants in the borders must be likewise secured.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen, S.W.

Bletia hyacinthina.—Examples of this plant may now be stood in a sunny position out of doors, and afforded abundance of water, and occasionally liquid-manure, until the leaves turn yellow.

Thunias.—As fast as these plants finish flowering or growing, they should be placed in a house and afforded plenty of air and light, so that the stems may ripen; and at a later part of the year, if the weather be not unfavourable, they may be stood outside in the sunshine. Let the plants be afforded abundance of water until the leaves begin to drop.

Cypripedium bellatulum, &c.—The successful cultivation of *C. bellatulum* and varieties of this section depends more upon suitability of house and surroundings, and intelligent treatment, than upon the exact character of the potting compost, or rooting medium. If the conditions are favourable, the plants may be potted in a mixture of crocks, clinkers, and tree-leaves, or stiff loam. Probably the best compost is one consisting of one part loam-fibre, one part peat, and some old lime mortar, sand, and a little sphagnum-moss. The present is a suitable time to repot those that have flowered, putting them into pots or pans, according as they will be suspended or not. Fill these to more than half their depth with drainage material, as lime-stone or old mortar, if either is procurable. Put the plants into position, and work in the compost amongst the roots loosely, keeping the base of the plants well above the level of the receptacle. The *Cattleya*-house will suit *C. bellatulum* and *C. b. album* best, but the warmest house will be needed by *C. niveum*, *C. concolor*, *C. Godefroyae*, and its variety *leucocentrum*. Non-success will attend the cultivator who permits water to lodge in the axils of the leaves, and remain there. Whenever evaporation is not brisk, great care should be exercised in affording water. In their home they are subjected to a heavy rainfall, but as they grow on almost bare rocks, where evaporation is rapid, saturation is of short duration; and our plants should be allowed to get dry before they are afforded water, and if by chance any lodge in the leaves means must be used to remove it. On hot dry days, a gentle spraying overhead is decidedly beneficial to them, but the operation should be skilfully performed. Hybrids that have affinity to members of this section, are, speaking generally, more amenable to ordinary methods of cultivation, though extreme care in affording water is essential. Any repotting needed should be done when the young growths are reaching the leaf stage. For the majority of these, the ordinary Orchid-compost may be used, varying the ingredients according to the character of the plant, e.g., those partaking much after *C. bellatulum* may be given a similar compost to that advised for the type.

Cattleyas.—The repotting and surfacing of *Cattleyas* is almost a continuous operation, for even the members of one species may not all be done in batches, if individual conditions are studied as they should be. Just now *C. gigas* will need to be repotted, for immediately on the completion of the bulbs, new roots emerge from their base, and whether the plant be in bud or flower, then is the time to shift it or afford a top dressing. *C. Skinneri*

will also now be fit for operating upon. Shallow Teak-wood baskets suit this species better than pots, and if the growths are disposed so that the growing points turn inward, some years will elapse before they grow out of bounds. *C. Bowringiana* is fast developing its growths, but until the roots emerge from the cushion-like base, an increased supply of water is unnecessary. The convolute bracts are apt to catch the water, which, if it remains there, will probably do harm.

General Remarks.—The fine weather treatment of Orchids is very simple were it not for the vagaries of our climate. The East Indian-house containing the *Dendrobiums* should be damped down, and the plants afforded water between 8 and 10 A.M., and then be well syringed. Admit air first through the bottom ventilators, and at the top during the midday hours. Between 2.30 and 3 P.M. syringe again, close all ventilators and remove the shading, which for this house should only be employed to break the direct rays of bright sunshine. Before leaving the houses for the day open the bottom ventilators a couple of inches, and leave them so throughout the night. The *Cattleya*-house should be treated similarly, though in that case more air may be admitted and less syringing done. The shading may be employed for a longer time. The bottom ventilators should be left wide open at night, so also should those in the cool-houses, in addition to a little air at the top on all favourable occasions. In cool-houses applying water, damping down, and spraying overhead should be done as soon after 8 A.M. as possible, and shading earlier if the plants are exposed to the sun. Do not shut these houses up after damping in the afternoon, but decrease the air-space at the top as evening approaches.

FRUITS UNDER GLASS.

By J. ROBERTS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Vines.—After this date, increased care will be needed to prevent scorching of the foliage and scalding of the berries. Ventilation afforded early each morning will prove a preventative by evaporating the condensed moisture from the house before the sun is at its brightest. Keep all the borders thoroughly moist, and feed those Vines which are swelling fruit with liquid-manure. Stop the laterals frequently on all Vines on which the fruit has been thinned, and maintain a moderately moist atmosphere in the house. Look over the bunches in succession-houses, and remove badly-set berries before the stoning stage is reached.

Late Houses.—The fruit in the house devoted entirely to Muscats should now be fit for thinning. As a surplus of bunches has been left up to this stage, first remove the worst of these, then carefully shake the remaining bunches, when, if the berries drop freely, it will be advisable to defer the thinning a few days longer. When thinning, keep a sharp eye for the berries with the strongest footstalk, as these are invariably the best set. Other late kinds, such as *Alicante*, *Gros Colmar*, and *Lady Downes*, which set very freely, should be thinned as soon as possible after the fruit is set. All of these kinds may be freely thinned on the first occasion, allowing at least an inch between each berry, and more in the case of *Gros Colmar*. Thin well the centres of the bunches.

Young Vines.—Canes planted in spring may be stopped when they have grown half-way up the house, and if they are growing strongly, select three shoots after the stopping, and train them to the top of the house. This will increase root-action. Afford air freely, and syringe them frequently. Vines that were recently planted in a growing condition should be kept moderately moist at the root until they are rooting freely in the new border. Tie in the shoots regularly so as to prevent any injury occurring to the leading growths. Pinch all side growths to one leaf.

Melons.—To obtain a good supply of Melons during the autumn months, even into November, two or three succession-houses should be planted between the present time and the end of July. It will be necessary to sow seeds once a fortnight up to the middle of July. In making the bed at this season, give a good depth of prepared leaves and dung to supply sufficient bottom-heat, as the hot-water-pipes will afford but little. A greater depth of soil may also be given with advantage; and the rougher it is, both under the plants and on the surface of the bed, the better. In all cases give

the house a thorough cleaning, and limewash the walls and trellises before planting. Crops now in the flowering stage will require the same attention in setting the fruit as earlier in the season. In the case of plants having rapidly-swelling fruits, the beds should be kept regularly moist, as heavy applications of water after the plants have been allowed to become dry, tend to cause splitting of the fruits, and coarse netting. Stop all laterals before they make more than two or three leaves; and if the old foliage shows a tendency to suffer under bright sunshine, it will be better to afford shade until the fruits are ripe.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener to F. A. BEVAN, Esq., Trent Park, New Barnet.

Strawberries.—In country gardens the earlier varieties growing in warm situations should now be protected from the birds by means of netting. Large plantations should be provided with a light framework, 4 or 5 feet in height, over which the netting can be stretched. The beds of the mid-season and late varieties must be kept free of weeds by hoeing or hand-weeding, and the rows mulched with long litter or clean straw before the berries begin to colour.

Preparation for Autumn Planting.—It is good practice to break up, and replant a certain area of Strawberries on fresh land each season, and by this means ensure abundant crops annually. An estimate should be made at this date of the number of plants required for the new beds, and on a rainy day the men should prepare the pots necessary for them, filling them with loamy soil made firm in readiness for layering. There is no need to crock these pots, a bit of turf answering all purposes.

Grafted Fruit-trees.—The grafted scions seem to have remained dormant for an unusual length of time this season, but growth has at last begun, and much attention will now be required in loosening the bast or worsted ligatures before they cut into the bark. Where there is a good union betwixt graft and stock, the ligatures may be taken away entirely, and those that are not yet grown together smeared with grafting-wax, or clayed as before. An important matter is the tying of sticks of suitable length to the branches or stems of the stocks, to which to fasten the young shoots as they grow out from the scions. This precaution should always be taken, in order to avert probable injury to the scion by wind-waving. Where grafting has been a failure, a young shoot from below the failed graft may be trained up from the branch or stem, and budded in August, or later. Should the operation of grafting have succeeded, all buds that appear on young stocks should be rubbed off; but in the case of old trees that may have been headed-back, a certain amount of growth should be permitted until the scions push away freely, when these growths should be entirely removed, or most of them, as may seem proper.

General Work.—Let the canes springing from autumn-fruiting Raspberry stools be thinned to an average distance of 10 inches apart if a trellis be employed to support them; but if to stakes five shoots to each stool will suffice. Gooseberries for bottling and preserving ought to be gathered before they become large. Rough Red, Scotch Nutmeg, and Warrington are excellent for these uses. In the event of a large demand, a number of bushes of these varieties may be grown in a spot apart, and not be pruned so severely as the dessert varieties, as quantity, not quality, is needed.

A GIFTED APPLICANT.—The Market Bosworth Workhouse Guardians recently advertised for a workhouse porter, and among the applications received was one from St. George's Workhouse, London, as follows:—"I am forty; I may also state that I am an expert concerning tonorial duties, which the porter is called upon to do, having served my apprenticeship in Bond Street. I have also a knowledge of gardening, engineering, and can do light carpenter's work. I can also play an organ. I could also relieve the chaplain when on annual leave. I hold the diploma of the London Organ School. I can also act as clerk to the Board of Guardians. N.B.—Will bring testimonials when selected." Strange to say, the Market Bosworth Guardians did not want such a gifted man as their porter.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, JUNE 18 { Royal Agricultural Society's Show, at York (5 days).

TUESDAY, JUNE 19 { Royal Horticultural Society's Committee.

WEDNESDAY, JUNE 20 { Royal Botanic Society's Floral Fête, Regent's Park.
Rose Show at the Wisbech Working Men's Club and Institute.

THURSDAY, JUNE 21—Linnean Society, Meeting.

SALES.

THURSDAY, JUNE 21.—Rose Mount, The Villas, off London Road, Stoke-on-Trent, Stove and Greenhouse Plants, Orchids, &c., by John Cowan, Gatesacre, Liverpool.

FRIDAY, JUNE 22.—Odontoglossum crispum, imported plants, at Protheroe & Morris' Rooms. At 11, Beechwood Road, Algburth, Liverpool, Stove and Greenhouse Plants, Orchids, &c., by John Cowan, Gatesacre, Liverpool.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—61° F.

ACTUAL TEMPERATURES:—

LONDON.—June 18 (6 P.M.): Max. 68°; Min. 57°; thunder showers.

PROVINCES.—June 18 (6 P.M.): Max. 63°, Home Counties; Min., 54°, N.E. Scotland.

Decorative Plants for Corridors, &c. EVERY now and then the gardener may feel puzzled how to meet the incessant demand on his resources in the shape of decorative plants for corridors, staircases, or dining-tables. We have lately seen much use made of *Retinosporas* for this purpose, such as *R. squarrosa*, and other so-called varieties. These may easily be propagated by cuttings, and grown on in pots to a size suitable for the purposes we have indicated. It is true that some of them soon assume a shabby appearance and die off; but as it is easy to keep up a constant supply, this decadence is of little consequence.

It is generally known that the so-called *Retinosporas* are only juvenile or adolescent forms of various species of *Thuia*, *Cupressus*, or *Juniperus*, and have no claim whatever to be considered distinct species, much less separate genera. Except for the convenient habit they have of revealing their true nature by sporting, or reverting to their original form, it would be most difficult to identify them satisfactorily, or to refer them to their proper species. Many of the commoner forms, such as *R. squarrosa*, *filifera*, &c., are forms of *Cupressus pisifera* and *C. obtusa*. This is proved by the occasional formation of cones of these species on their branches.

One elegant "*Retinospora*" familiar to us in a house in Kent, where it is much used for decorative purposes, has been a puzzle to us for some years; but quite lately we had the

opportunity of assuring ourselves that the plant in question is the juvenile state of that very elegant *Cypress*, *Cupressus funebris*—wild in China, and planted around Buddhist temples in Sikkim. FORTUNE, when he first came across this beautiful tree, went into as many raptures as a hard-headed Scotsman could do; and Sir JOSEPH HOOKER, who met with the plant in Sikkim, speaks in like enthusiastic terms. Now we know that not only is the adult form very beautiful, but that the adolescent stage is also attractive. The general appearance is that of *R. squarrosa*, but the habit is different, and the glaucous leaves are not twisted and curled, but flat. It is too tender in most places to be planted out, but for conservatory decoration it is well adapted. Some plants are now producing adult foliage and male flowers, which are sufficient to prove the identity of the plant.

Messrs. SANDER have also a very sturdy plant of a decorative character, to which they apply the name *Juniperus Sanderi*; but its real name is not yet ascertained. It may be a form of the Japanese form of *J. sinensis*.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the committees will be held on Tuesday, June 19, in the Drill Hall, James Street, Westminster, S.W., when a lecture on "Aquatic Plants" will be given by Professor G. S. BOULGER, at 3 P.M.

LINNEAN SOCIETY.—On the occasion of the evening meeting to be held on Thursday, June 21, 1900, at 8 P.M., the following papers will be read: 1. "On some Scandinavian Crustacea," by Dr. A. G. OHLIN. 2. "The Subterranean Amphipoda of the British Islands," by Mr. CHAS. CHILTON, M.A., F.L.S., &c. 3. "On Certain Glands of Australian Earthworms," by Miss SWEET. 4. "Notes on Najas," by Dr. A. B. RENDLE, M.A., F.L.S.

DUKE OF WELLINGTON.—The death of his Grace the Duke of WELLINGTON removes from among us one who was much interested in gardening matters, and especially trees.

EARL OF RADNOR.—By the death of Earl RADNOR, horticulture loses one of its foremost patrons. The gardens at Longford Castle have been as remarkable in their way as the picture gallery in its.

M. MASSON.—We learn that M. GEORGES MASSON, the well known publisher of scientific works in Paris, died recently at the age of sixty years. M. MASSON was besides President of the Paris Chamber of Commerce, and held many other public appointments.

LECTURES AT CHISWICK.—Professor G. HENSLOW has very kindly offered to give four lectures at the R.H.S. gardens to the students and gardeners in the neighbourhood at 8 o'clock in the evening on the following dates:—June 20, Protoplasm, what it is, and how it maintains Plant life; June 27, Protoplasm, the instrument of evolution among plants; July 4, The phenomena of Germination; July 26, The uses of Leaves.

THE GARDENING CHARITIES.—We understand that the Welshpool Horticultural Society has been dissolved, and the surplus funds, some £200, has been divided amongst various charities. Through the kindly exertions of Mr. JOHN LAMBERT, the gardens, Powis Castle, the Gardeners' Royal Benevolent Institution obtains £20, and the Royal Gardeners' Orphan Fund benefits by the distribution to the amount of £10.

HORTICULTURAL HALL, BOSTON, U.S.—We have just succeeded here in arranging for a new Horticultural Hall in Boston, which promises to be a fine thing, the land and building costing £100,000. The building is in the very best part of the city, on

a prominent corner, surrounded by streets, and covering half an acre of ground. When it is completed, the Society will have, besides its very large and valuable library, invested funds amounting to £50,000, and an additional assured income of about £1200, and the rentals of the halls in the new building, which are specially arranged for social functions. These rentals may amount to a considerable sum, perhaps £3000 or £4000 a year. So, on the whole, I think the Society may be considered to be in a flourishing condition. This is the result of careful financial management, some rather important gifts in money, and the remarkable rise in the value of the ground covered by its old building. This has recently been sold for rather more than £20 a square foot. Later I will send you a sketch of the elevation of the building. C. S. Sargent.

—The following additional particulars are taken from the *Boston Herald* of May 17, 1900:—

According to the plans, it will have a frontage on Massachusetts Avenue of 210 feet, and 94 feet on both Huntington Avenue and Falmouth Street. From the sidewalk it rises 56 feet to the top of the main cornice, and is surmounted by a pitch roof covered with slate.

In the centre of the Massachusetts Avenue front are three doors of entrance, and on Falmouth Street a broad entrance-way wide enough to permit the driving of wagons and carriages into the main exhibition hall, for which purpose this entrance was designed.

There are heavy rusticated piers at the four corners of the building, and along the front a colonnade of ionic pilasters, standing on a high base of limestone, supporting the entablature. The pilasters divide the Massachusetts Avenue front into thirteen bays, and the Huntington Avenue end into five.

Naturally, the most important feature of the building is the main exhibition hall. This is at the rear of the Massachusetts Avenue front, and opens on to Falmouth Street. It measures 122 by 50 feet on the ground, and is 43 feet high, having a monitor-lighted roof.

"On the ground" is the fact, for the floor of the hall is gravel-covered earth. There, in winter, wagons may be driven into the apartment, and flowers and plants received and delivered with few handlings, and without exposure to the weather. The advantages of this arrangement in the event of dances or other entertainments in other parts of the building are obvious. The free use of the hose will be permissible in this exhibition hall, which is no small advantage in itself.

At the inside end of the hall is a 40 by 25-foot platform, reached by steps, from which doors open into the vestibule and lobby connected with the main entrance from Massachusetts Avenue.

The society's lecture hall is in the Huntington Avenue end of the building, an apartment measuring 48 by 70 feet, with an ample platform, dressing rooms, and the usual lecture hall accessories.

To the left of the main entrance, lobby, and vestibule is a small exhibition hall, measuring 28 by 56 feet, connected with the main exhibition room.

The lecture hall is admirably adapted for use as a ballroom, but where greater floor space is required, the laying of a floor, made in sections for the purpose in the main exhibition hall, will provide it.

In the second story, over the lecture hall, is the society's library, fitted in the usual manner, with two stories of stacks, and capacity for 20,000 volumes. The librarian's room and the cataloguing room are connected with the library, and there is also a newspaper and periodical room, and a room for special study. On this floor, in addition, are the offices of the secretary, photograph room, with dark room and other apartments that may be put to various uses.

In the basement there are three committee rooms, one large enough for use as a dining hall. There are also service rooms adjoining the lecture hall above.

THE INTRODUCTION OF THE GYPSY MOTH.
—The annual Report for 1899 of the Fruit-growers' Association of Ontario, contains an interesting note by G. T. POWELL, of Ghent, N.Y., from which we

the silk worm, thereby hoping to get an improved silk worm that would be of great value to America. While he was experimenting with these few gypsy moths, there came a gust of wind that blew a few

ravages of a caterpillar that was becoming somewhat alarming. The forests were being denuded of their foliage, and that was the introduction into this country of the gypsy moth with its very

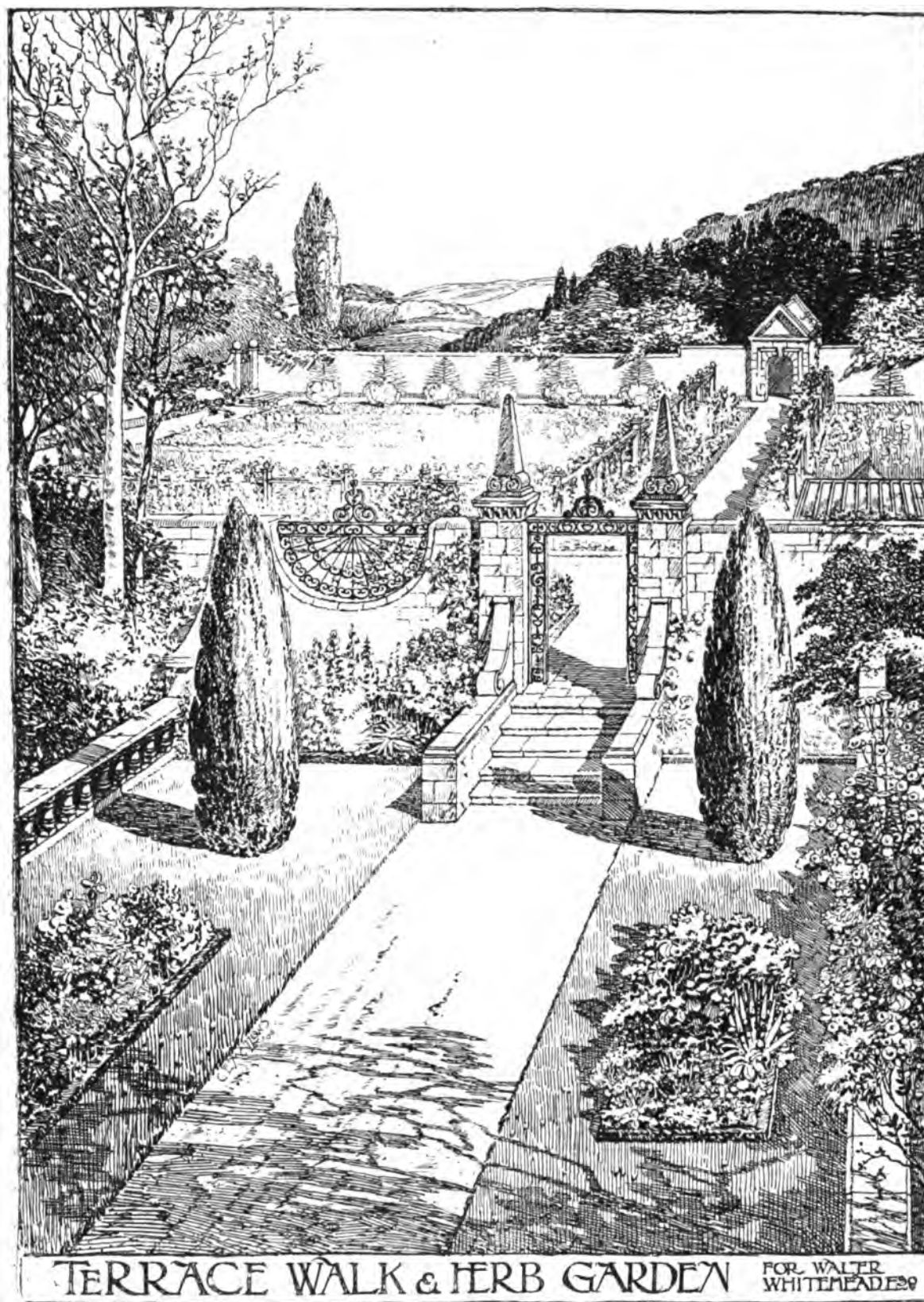


FIG. 126.—(SEE "BOOK NOTICE," P. 385.)

extract the following remarks:—"A little more than ten years ago there was introduced into Massachusetts what is known as the gypsy moth. An entomologist from France brought over to this country a few of those gypsy moths to cross with

of them out of the open window near the vicinity of Boston. He closed his window, went out immediately, but he could not find them. No further thought was given, but about two years after that there were discovered near Boston the

destructive work as it is being carried on to-day in Massachusetts. It has cost the State of Massachusetts nearly one million dollars simply to hold it in check. The annual appropriations are to-day two hundred thousand dollars just to keep it within

limits near the city of Boston. It has denuded their parks, and it has entered their forests, and if it gets beyond the control of the present commission, it threatens to destroy the vegetation of the State of Massachusetts. The gypsy moth deposits its eggs in the grass, in the trees, anywhere in the stone walls, in the crevices of rocks, and it requires to-day a force of five hundred men who are fighting it along different lines with fire, even going into the rocks and stone walls and injecting kerosene oil, and fire to follow it—this is the manner in which the gypsy moth is being fought. Men are being sent to the tops of high trees, great Oaks and Elms, with ropes fastened about their waists. They swing themselves out to the outermost branches of those great trees, there to pick off those egg-nests, and you can imagine the great amount of labour required to just simply keep this great pest in check."

THE QUEEN OF FLOWERS.—Under this title our contemporary, the *Girls' Realm*, this month publishes an article by HAROLD SHEPSTONE, "Concerning the Rose." The paper is plentifully illustrated with pictures of special varieties of the flower, and of luxuriant bushes, trees and climbers, and will please many besides the youthful readers to whom it is avowedly addressed.

SALE OF MR. BLACKMORE'S FRUIT GARDEN.—We hear that part of the land at Teddington, on which our late contributor, Mr. R. D. BLACKMORE, the novelist, had an orchard, was lately sold by auction. The land will, probably, be ultimately turned to account for building purposes.

THE NEXT FRUIT SHOW AT THE CRYSTAL PALACE.—The schedule of prizes to be offered by the Royal Horticultural Society at the next exhibition of British-grown fruit, to be held at the Crystal Palace on September 27, 28, and 29, has just reached us. Beyond a few alterations and additions, it has been compiled very much upon the same lines as last year. There will again be special district county classes, and a section exclusively of market-growers. Nurserymen must enter their exhibits in certain defined classes. There are to be three prizes in each, consisting of medals of graduated value. Nurserymen may not combine for the purpose of exhibiting, but must show as an individual firm or individual. There must be no "district" exhibit from nurserymen, and all the produce exhibited by a particular firm must have been cultivated by the same. In the single dish classes for dessert Apples, in cases of large fruiting sorts, such as Blenheim Orange, Pippin and Gascoigne's Scarlet Seedling, the fruits exhibited must be "small highly-coloured fruits which will pass through a 3-inch ring." This is very desirable, for such varieties when cultivated to their largest size are wholly unsuitable for dessert, but they are too valuable for their use to be restricted to culinary purposes. There will be no conference at this exhibition.

THE PROPOSED EXTENSION OF BROCKWELL PARK.—The Lambeth Vestry at their meeting on Thursday night, June 7, discussed a report of the Brockwell Park Extension Committee, recommending the purchase by the Vestry of 42½ acres at Herne Hill. The vendors, the Blackburn Trustees, have agreed to reduce the price to be paid for it from £1713 to £1500 per acre, on condition that the contract for the sale is signed not later than the 24th inst. The total cost on the reduced basis will be £65,450. On the motion of the Chairman, the recommendation of the Committee was adopted almost unanimously.

STOCK-TAKING: MAY.—The movement in both divisions of our foreign and colonial trade is still an upward one; there are some occasional fallings off noticeable, but these cases are trifling compared with the other side of the account, and occasionally only in value, not in bulk. On the whole, the outlook, from a trade point of view, is a very satisfactory one. The imports for the past month foot up at £43,876,427—an increase of £2,999,599 over

the total for the same month last year, when the figures were £40,876,828. With the exception of "animals for food," foodstuffs, and tobacco, all sections participate in the increase. Our extracts from the "summary" table are as follows:—

IMPORTS.	1899.	1900.	Difference.
	£	£	£
Total value ...	40,876,828	43,876,427	+2,999,599
(A.) Articles of food and drink—duty free ...	14,895,834	15,007,883	+702,049
(B.) Articles of food & drink—dutiable	2,078,090	1,543,881	—534,218
Raw materials for textile manufactures ...	5,537,567	6,981,339	+1,443,772
Raw materials for sundry industries and manufactures	4,435,002	4,942,069	+506,977
(A.) Miscellaneous articles ...	1,166,984	1,386,407	+199,423
(B.) Parcel Post ...	87,187	98,469	+11,282

It may be worth while noting that, invariably, some imports are occasionally entered twice: sundry raw materials being sent abroad to be partly manufactured by cheaper labour, in order that the goods, when finished at home, may be re-exported to markets where competition can be more successfully conducted by means of the exterior labour. There are fluctuations to note in the items of fruit, roots, and vegetables, as under:—

IMPORTS.	1899.	1900.	Difference.
	Bushels.	Cwt.	Value.
Fruits, raw:—			£
Apples ...	127,422	67,325	+17,004
Apricots and Peaches		384	+1,067
Bananas... bunches		157,304	+65,084
Cherries... ..	38,761	11,279	+1,221
Gooseberries		1,104	+2,585
Grapes	2,981	1,002	—166
Lemons	164,210	86,704	+1,422
Nuts—Almonds (cwt.)	2,847	4,711	+6,710
Others, used as fruit		47,780	—22,283
Oranges	938,328	886,947	—51,381
Pears	1,305	33	—779
Plums	408		—802
Strawberries		4,619	+17,758
Unenumerated... ..	127,362	4,465	—69,150
Vegetables, raw:—			
Onions bush.	660,467	604,950	+55,517
Potatoes cwt.	1,014,681	866,378	—148,303
Tomatoes		47,199	+53,548
Vegetables, raw, unenumerated value	£136,600	£83,325	—53,275

Mention should here be made of the fact that the State of Washington—bordered by Puget Sound on one side, the Pacific on the other—is rapidly becoming a magnificent orchard, in which all manner of fruits are or may be grown to perfection. Wheat and Oats are also, of course, largely cultivated. The imports for the past five months foot up at £213,569,770, as against £198,403,349—a gain of £15,166,421; a very palpable increase. Come we now to—

EXPORTS,

which show an increase of £1,685,690 over the same month last year. The figures for the past month are £24,715,930, against £23,030,240; the one item showing a large falling off being that of ships built to foreign order. £1,481,863, balanced by raw materials with an increase of £1,355,926. The figures for the past five months show a total of £119,481,429, or an increase over the same period last year of £14,939,602; the figures then being £104,541,827. What Capel Court terms a "boom" has not yet arrived; that will doubtless be preceded by a goodly show in "industrials!"

FLOWERS IN SEASON.—Than Lupins, where the plants do well, few plants make a finer show in the garden during the summer months, with

their cheerful blue, yellow, white, or parti-coloured flower-spikes. A correspondent, writing from Penrose Street, Walworth, sends a number of spikes of seedling varieties of *Lupinus polyphyllus*, the colours of which he tells us have become fixed, all of which possess flowers of varying shades of blue, set off by white or yellow keels, and terminating at the tip of the spikes with unexpanded flowers of either white or yellow. Some of the flower-heads measured 15 inches in length, and all were pretty decorative flowers for beds and borders. Lupines have two foes, frost and slugs; but if protection against these can be afforded the plants, the root-stocks endure for a number of years. The prudent cultivator does well to keep a stock of young plants in pots, and winter them in a cold frame on a coal-ash floor, so as to be provided against the loss of his out-of-doors plants.

— Mr. LINDSAY sends specimen in flower of a very distinct New Zealand *Veronica*. It is an upright growing shrub, thoroughly hardy, and known in Gardens under the name of *Veronica decumbens*, which he thinks to be the true *V. carnosula*, Hook. f. ? He also sends specimens in flower of seedlings raised from the hybrid *Cheiranthus Marshallii*, showing reversion, neither of the seedlings being so good as the parent. [The *Veronica* agrees very well with the description of *V. carnosula*, but we are not able at the moment to compare the two.]

ARBORETUM EXPERIMENTS IN CANADA.—From the just issued report of the Agricultural Department at Ottawa, we learn that the arboretum on the experimental farm (which, with the botanic garden, covers an area of 65 acres), has been doing excellent work. There is a large collection of trees, shrubs, and perennial plants, and is growing in value and interest to Canadians every year. A catalogue of the trees and shrubs growing here has been published, in which are given the common and scientific names, native country, date of planting, and relative hardiness. Up to the present time, 3071 species and varieties have been tested, of which 1434 have been found hardy, 361 half-hardy, 232 tender, 307 winter-killed, 737 have not been planted long enough to admit of an opinion being given as to their hardiness. This looks like satisfactory work.

PLURICARPELLARY PISTILS IN PEACH.—A correspondent at Pulborough, Sussex, kindly sends us flowers of Peach with two, three and four separate carpels. The original Peach it is surmised from structural reasons, had five pistils, and the present specimens are looked on as reverians to this aboriginal form.

FRUIT AND VEGETABLE TRIALS IN CANADA.—The authorities of the Ottawa Experimental Farm have just reported on the work of the preceding twelve months that, in the orchards, Vineyards, and small fruit plantations, experiments are being conducted with a large number of varieties of fruit, in order to ascertain their relative hardiness, productiveness, quality, freedom from disease, and any other matters concerning them which will be likely to prove useful to the public. Experiments in top-grafting the tenderer but best varieties of Apples on hardy stocks was a prominent feature of the work, and good results are expected. The testing of vegetables has also received considerable attention, and the best varieties are reported on from year to year. Since 1890, spraying has been an important part of the work, and many experiments have been tried to demonstrate or determine the value of different spraying mixtures and solutions in preventing the growth of fungous disease, and in destroying or preventing the depredations of injurious insects on trees, shrubs, and plants. In the past year interesting results were had from the use of whitewash on Apple-trees, which was found to destroy the oyster-shell bark-louse affecting the trees. It would be interesting, perhaps, to have a "recipe" for the particular destroying medium.

SPOTS ON ROSE LEAVES.—Prof. WEHMER has a paper on this subject in a recent number of the *Garden Flora*. His conclusions are that the coloured spots generally found on Rose leaves are due to natural abnormalities, disease, or to the approach of decay. They may be classified as follows:—

1. Spots caused by parasitical organisms (fungus specks). In these cases the colour is dark brownish-red to brownish-black or orange.
2. By the physical influence of the atmosphere (sun-burn). The spots in this case are red-violet, becoming reddish-brown in decay. With these are included injuries by wind. Results of frosts are disregarded.
3. Chemical influences of the atmosphere (injury from smoke). Colour brownish, often with a well-defined dark edge; also brownish-black (asphalt fumes).
4. Decay in the course of nature (autumn colours). Colour dull brown, with yellowish or pale red shades. Leaves previously red become reddish-brown later on.
5. Premature decay, sometimes from unknown causes. Colour dull brown, seldom reddish (drought, or influence of soil). Also forms similar to those in Class 2.

Fungus, sun-burn, acid gases, and natural decay of late autumn always act in a well-defined manner, so that they are generally easily distinguished, and the following colourings are readily recognised:—

1. Reddish-violet (always in the living tissue, and mostly on the upper surface).
2. Muddy, dark reddish-brown to smutty (specks on living leaves).
3. Orange-yellow (specks on living leaves).
4. Muddy brown (entirely dried up).
5. Reddish-brown (entirely dried up).

In decay consequent upon age may appear ashy-yellow, or pale, reddish-brown tints. The greatest interest centres in the reddish-violet and the reddish-brown that follows it, a condition universally known in the culture of Roses, and which is generally attributed to the influence of the sun.

RHODODENDRON SHOW IN LONDON.—The famous collection of Rhododendrons of Messrs. JOHN WATERER & SONS, Ltd., Bagshot, may just now be seen represented in the gardens of the Royal Botanic Society, Regent's Park. We had the opportunity to see this display on Monday last, the opening day, when the weather was 88° in the shade. A continuation of such conditions would soon hurry past the blooms. Most of the plants are put out into beds of diversified shapes, and at various levels, with paths that run round each of them. Nothing could more illustrate the showiness of this most valuable hardy flowering shrub, because the plants are massed in the most effective manner, and the varieties selected for display are the best of the whole collection, saving part of the confusion that must be caused by the excessively long lists of Rhododendrons that are now published. Pink Pearl, the variety awarded a First-class Certificate at the last meeting of the Royal Horticultural Society, when shown by Sir Trevor LAWRENCE, was of course the particular novelty most to the front, and most frequently enquired after. Several plants were shown in pots, each of them overwhelmed with the magnificent blossoms of rose-colour and pink. Another comparatively new one is Lady Clementine Walsh, nearly white, with green spotting on upper petal, and a rose tint round the margins of all the petals. Thomas Ashton, very pale pink, with deep brownish-crimson blotch, is also a new one. Of older sorts, there is no lack of pretty flowers, and the following are some of those we noted whilst passing through the marquee:—John Waterer, bright crimson; Perspicuum, faintest pink, with light green spots and blotch; Fleur de Marie, red, with white centre; Concessum, deep pink, and green spotting; Lady E. Cathcart, rose-colour, with very deep blotch; J. H. Agnew, mauve, with very effective deeply-coloured blotch; Chionoides, white, with green

spotting; Queen, very large, white, or faintly tinted with pink, and yellow blotch; Mrs. Holford, reddish-crimson; Princess of Wales, white, with rose edging; Minnie, a tinted flower, with broad blotch of yellow markings; Beauty of Bagshot, pink, white and yellow, rather small; Kate Waterer, bright rose-colour, with green spots on a white ground; and Francis B. Hayes, white, with deep brown blotch, very distinct. The show will be continued for a fortnight.

PUBLICATIONS RECEIVED.—*Journal of the Scottish Meteorological Society*, Series III., Nos. XIV. and XV., with tables for the years 1897 and 1898. (W. Blackwood & Sons, Edinburgh and London.)

PLANT PORTRAITS.

ACACIA RUPICOLA.—Phyllodes oblong, obovate, acute, glabrous; flower-spikes spreading, cylindric, 4 to 5 cent. long, about the length of the phyllodes. *Revue de l'Horticulture*, Belge, June.

CESTRUM FASCICULATUM.—Stove shrub, with oblong, acute leaves, and terminal tufts of orange-coloured tubular flowers, with very small limb. Mexico. *Revue de l'Horticulture*, Belge, June.

BOOK NOTICE.

THE ART AND CRAFT OF GARDEN-MAKING.*

DURING recent years we have had at almost regular intervals a new book on landscape-gardening. In our own language, English and American, we have had at least a dozen books on the subject since the days of Repton and Loudon, and not a few from France and Germany. This redundancy of literature either shows that the art is rapidly progressing, or that each author has thought that previous writers had not dealt with the subject as it ought to be treated. We fear that the latter assumption is accountable for this activity of writers.

The perusal of this, the latest book, leaves us with the impression, that while the art is really progressive, the literature devoted to expounding its principles and practice is not so, and that the present author has added but little to the literature of the art. This will be apparent to all who have studied the works of Price, Repton, and Loudon, written in the early days of the century; the practical works of Major and Kemp in the middle of it; and the prolific crop that has appeared towards its close, including that very comprehensive treatise, *L'Art des Jardins*, by M. André.

Everything in this present book will be found to have been dealt with in the works by these authors, though perhaps not embodied in such a handsome volume. Nor had they (the authors) the opportunities of the present day in illustrating their works by photographic reproductions, which render a work attractive.

The ideal book on modern English landscape gardening would be one that, while it embodied the best from all that preceded it, would deal judiciously with the vegetation with which our gardens have been enriched during the present century. He is the true landscape gardener who possesses a thorough grasp of this abundant material, and can plant a garden which would give the fullest expression of beautiful growth suitable to its peculiar soil, climate, or situation. It is this want of knowledge, and this over-abundance of variety, that makes present day gardens, planted in the common way, so distracting, solely on account of the inability of the planters to select their material and arrange it in a tasteful way.

Skilful planting is the very essence of landscape-gardening; and just as a landscape painter must have a thorough command of the pigments on his palette, so must a planter know his material as thoroughly, for no matter how correct the drawing is in the one case, and how perfect the design

or plan in the other, the success of the picture depends upon the arrangement of colour and form.

The author of this book apparently subordinates planting to plan, as his chapters on the subject are the weakest in the whole book; whereas all who have practised landscape-gardening successfully will agree that the planning of a garden is the least difficult part of the art, and that formal garden-planning is a simple matter. The work that requires the greatest care, forethought, knowledge, and taste, is the planting of a garden in a natural way, so that the parts shall blend in perfect harmony, creating here leafy and shady glades, there masses of effective colouring—every tree, shrub, and flower being adapted to the particular spot where it could display its full growth and beauty. Such a garden, producing an ever-varying scene of infinite variety and delightful intricacy, is in truth a place for sweet retirement and pleasure, rather than the formal plateau, where there is no variety of light and shade, and where the whole design can be seen at a glance.

The author has evidently a very decided leaning towards what is termed architectural or formal gardening, as opposed to the natural style, which, carried out on the true principles of the art, constitutes the English garden, originating in England, known throughout the world, and copied in every country from Japan to California, and on which we justly pride ourselves. We hope he is not among those who have been lately making strenuous efforts to revive mediæval gardening, not in its simplicity and quiet dignity, which we all admire in beautiful old gardens, but accompanied with such absurdities as topiary-work, which one would have thought had disappeared utterly from English gardens under the scathing ridicule of Pope and others.

These advocates of formalism seem to premise that no garden is possible which is not confined by straight lines, generally of costly masonry walls bedecked with insipid ornament; that no water is ornamental which is not confined by rectangular or symmetrical enclosures; that no tree must be allowed to assume its natural growth, but be clipped and pruned into fanciful forms. This was perhaps in keeping with Tudor days, when the dearth of garden vegetation was an inducement to produce variety by the shears, and make a garden different to outside wild Nature.

Formal gardening, carried out with simplicity and dignity, is often beautiful; badly conceived and carried out, it is execrable. It is the most costly in its construction as well as in maintenance of all styles of gardening, and in these utilitarian days these are the chief considerations. The fanciful sketches the author gives of formal gardens may be alluring to the unwary; but those who know that it takes a lifetime to form an archway in Yew, for instance, and the work entailed in keeping clipped hedges and masonry walls in order, will decide for themselves which style to adopt. The criterion of a landscape gardener's skill is furnished not by imaginary sketches and plans, but unerring photographs of his work taken at reasonable intervals after completion.

Terrace gardening receives a deal of attention in this work. This is a very contentious subject between the architect and landscape gardener, and the continual feud between them chiefly arises from this point. In the immediate surroundings of a house it is often necessary to have a level plateau, but the size and form of this, if it at all affects the house itself, ought and should be designed by the architect of the house, who should best know the right proportions of base he wishes to give to his house, and if he were to always include the terrace in his plans of the house there would be no cause for friction. The garden designer's work is to fill in the framework with beautiful vegetation.

The ground-plans given in the work of terrace gardens are in the main excellent, showing simple and effective beds, and no eccentricities of outline, but the sketches contradict these. The ground-

* By T. H. Mawson, Garden Architect, Windermere. (B. T. Batsford, High Holborn; and G. Newnes, Ltd., Southampton Street, Strand, W.C.)

plans of gardens throughout the work are beyond reproach, but seeing that every site of a garden must necessarily need different treatment, and without knowing the natural contours of the ground dealt with, ground-plans do not teach or help much. The illustrations showing garden-houses or summer-houses are good, and are superior to the monstrosities one usually sees in summer-houses where false rusticity is the usual stamp.

The treatment of ornamental water in lakes, ponds, streams, and fountains might have been dealt with more fully, and it is comforting to find that the author does not propose to square such a natural-looking lake as that created by the much-maligned Brown at Blenheim. The author's propensity for formality overcomes him even in a natural-looking pond, for in a plan in this chapter, the inlet on the irregular outlined pond has its little formal design. The introduction into gardens of artificial cascades, fountains, &c., in this northern climate requires to be carried out with consummate taste, but nature-like lakelets, or even a Dutch canal, are everywhere desirable in which to grow our recently-acquired hybrid Water-Lilies.

In his remarks on avenue planting, we are quite in accordance with the author that a stately avenue, considerably located and planted with the right kind of tree, is a beautiful feature in any place, but in the planting of avenues one must be imbued with the bold conception of a Le Notre, otherwise an avenue or any symmetrical planting of trees will not be effective.

There are in the book a few charming views of Westmoreland lake scenery, reproduced from photographs; indeed, all the reproduced photographs of natural scenery are admirable, and contrast strongly with the artificiality of the formal garden sketches.

The kitchen-garden, conservatories, hot-houses, &c., are dealt with in the usual way, and call for no comment, beyond that we think the conservatory in Wolverhampton Park, as shown in the illustration, is not an ideal conservatory, being faulty in proportions, and ill-adapted for plant culture, excepting for plants grown only for foliage.

Chapters are devoted to descriptive lists of trees, shrubs, hardy plants, &c., but it is evident that the author's knowledge of these is very superficial, though it is most important in a landscape gardener's education. The lists, the author states, are not intended to be exhaustive, and certainly they cannot be termed selective, when such omissions occur as the Tulip-tree, Catalpa, Liquidambar, Sophora, Viburnum plicatum, Magnolia stellata, Prunus japonica, and many others among trees and shrubs; and such well known plants as the Japanese Anemone, whilst no mention is made of Bamboos.

The descriptive notes are often peculiar, thus "*Ailanthus glandulosa*, generally grown as a standard on long clean stems 6 to 8 feet high, pruned to a mop-head, in which form it makes a good tree for planting at stated intervals along a straight walk, it bears lovely flowers, should not be planted in the park or woodland."

Fancy pruning an *Ailanthus* into a mop-head! It certainly would not then produce the lovely flowers the author speaks of, but which most people would call inconspicuous. The ruddy clusters of fruit in autumn produced on trees from 40 to 60 feet high, and unpruned are undoubtedly attractive. It is moreover a very fine park tree, but is not desirable in a garden on account of the disagreeable odour the tiny green flowers exhale.

The vicious propensity of the author to prune trees into mop-heads is seen throughout his lists, and yet of the Weeping Ash which forms a shady bower without pruning, he says, "It is very funereal in appearance, and can seldom be used with advantage!"

He calls the Wellingtonia the Noah's Ark tree, presumably on account of rigid formal outline. How very inconsistent in one who advocates clipping trees into mopheads. Again he writes:—

"*Araucaria imbricata*, or monkey-puzzle, is a

variety most unsuitable for garden planting. Its proper place is in an arboricultural museum, or piece of ground devoted to freaks of Nature."

Perhaps the author has never seen a flourishing grove of *Araucarias*, or the stately avenue of them at Bickton. The "arboricultural museum" would presumably be the formal gardens (as shown in his sketches), where the monkey-puzzle would associate with the peacocks, the mopheads, and other freaks produced by the shears.

Throughout the descriptive lists there are mis-statements and errors, and it would be advisable in another edition to revise these, and for some competent person to correct the botanical names.

[We are indebted to the publishers for the use of two of the illustrations (see figs. 126, 127) from this handsome volume. Ed.]

AUTUMN PEAS.

THERE is a difficulty in securing good crops of late Peas in some gardens, and this is not due to the variety but to the soil and local conditions. In the north, excellent Peas are obtained from August to the beginning of October—as, for example, at Alnwick Castle Gardens last year the late Peas podded freely; whilst in the south, in spite of trenched soil and ample plant-food and moisture, the results on light soil were not nearly so satisfactory. Fortunately, late varieties of dwarf habit have had more attention from raisers than formerly, but these varieties differ in certain soils and districts; the best being those with robust constitution, which is not lacking in those of recent introduction.

The worst foe to late Pea-culture in the south of the country is drought, which is sometimes so severe as to ruin a crop. On light land, Peas are seldom free from attacks of mildew if the weather gets very dry; and rainfall after a period of drought is always sufficient to bring on an attack. In Staffordshire, our best autumn Pea was Veitch's Perfection; but the same Pea, given similar good treatment at Syon, fails to crop satisfactorily. The soil in the former county, though light, was of fair depth, and rested on heavy loam; whereas at Syon it is very light, and overlies gravel. In light, warm soils, crops are early here; and at this date (June 4) I am gathering the variety Gradus, a full-podded Marrowfat, one of the best of the late Mr. Thomas Laxton's raising. In heavier land it would not be considered safe to sow so early, as I do, in order to get Peas on the table at that date.

I catalogue my difficulties in order to show that soil and locality have a great effect on the productivity of Peas. A few seasons ago, Mr. Hudson, gardener at Gunnersbury House, had rows of capital late Peas, and Gunnersbury is but a short distance from Syon; but the soil there is heavier and deeper, which fact goes to prove that to be successful with late Peas the soil must be of fair depth, and cultivation must be deep also.

Some gardeners prefer to sow what are known as a first early, but with this I do not agree, for the reason that here they have failed altogether in dry and warm seasons; and white, small Peas, as these are, are seldom worth growing. There is, however, one exception, viz., in Bountiful, a variety growing 3 feet high, with big pods, with blue seeds when ripe, which is an advance on all round-seeded white varieties. It is a valuable Pea for either late or early supplies, and good for autumn sowing.

For many years I used to grow the variety Sturdy, till it was surpassed by new varieties. It is, however, a Pea growing 3 feet high, upon which reliance may safely be placed. That fine Pea, *Ne Plus Ultra*, is one of its parents.

A very fine late variety, not fastidious as regards soils, is *Late Queen*, a dwarf, strong grower, that needs a good deal of space to do it justice, namely, by thin sowing. *Late Queen* in quality equals *Ne Plus Ultra*, and is like it in the colour of the unripe Peas, but its pods are broader, and the haulm is very robust; and the latter was quite free from mildew

at Alnwick last year, the plants continuing to bear into the month of October.

Another reliable variety for late bearing is *Perpetual*, a long bearer, as its name implies, which, even last season, was very productive. Pods and peas are of a dark green colour, and flavour excellent. The haulm is robust, and produce enormous.

A variety which finds favour in the North is the *Michaelmas Pea*, a distinct variety, good as a late free cropper, of fine quality.

Of tall Peas I may mention *Chelsonian* (6 feet), a very fine Pea—one of the latest bearers. *Autocrat* is another Pea, valuable for cropping, and few surpass it in that respect; an excellent dry-weather Pea, if plenty of space be afforded the plants. *G. Wythes*, *Syon House*, *Brenford*.

THE HERBACEOUS BORDER.

ONONIS ROTUNDIFOLIA.

THIS is one of the prettiest of the Rest-harrows we have in cultivation in the hardy plant garden. It is unfortunate, however, that it does not appear very long-lived in the greater number of gardens, and that in many it lasts only for a year or two. Indeed, some growers find that it succumbs the first winter after it has been purchased. This is to be regretted, as a plant a foot or two across and from 12 to 18 inches high, looks very attractive when it gives an abundance of its rose-coloured, crimson-veined, Pea-shaped flowers on the bush of trifoliate foliage. The plant is shrubby in its habit, and the leaves are clothed with viscid hairs. I find that it needs full exposure to the sun, and a dry, well-sheltered position. Although it produces seed freely in my garden, it is seldom that a self-sown seedling appears. I can only recollect one such, and this appeared among the gravel on an adjacent path. It is best to raise plants of *Ononis rotundifolia* from seed, and to plant them out when young, as they move badly when they become older. My experience of the few self-sown seedlings which appear does not correspond with that of those who recommend it as suitable for naturalising, but it is in accordance with that of a number of my correspondents. *Ononis rotundifolia* is a native of the Pyrenees and the European Alps. *S. Arnott*, *Carsethorn-by-Dumfries*, *N.B.*

STYLOPHORUM DIPHYLLUM.

So easily grown seems this plant, that one is apt to wonder that it is not more often met with in many gardens where hardy flowers are largely grown. It is true that it is not particularly showy, and that plants with yellow Poppy-like flowers are far from scarce throughout the garden year, and more particularly from the time the prolific *Meconopsis cambrica* comes first into bloom, with its clear yellow flowers. *Stylophorum diphyllum* is, however, rather earlier than either *Meconopsis cambrica* or *Papaver nudicaule*, and it is distinct enough in appearance to merit a place in the gardens of those who care for flowers which are of its character. It prefers a rather moist position with a little shade, and when its likings are thus studied, with the addition of a peaty soil, it thrives and looks happier and brighter than if grown under different conditions. In a cool, half-shaded nook it looks very pleasing, with its abundance of bright and prettily-cut leaves, and its small yellow flowers. It bears a considerable resemblance to the *Chelidoniums*, whence its name of "*Celandine Poppy*." *Michaux* named it, indeed, *Chelidonium diphyllum*, another synonym being *Meconopsis diphylla* (D.C., *Syst. Veget.*). It is said to have been also called, *Stylophorum ohioense*. Its native habitats are the low, damp woods of North America; its range, according to Britton and Brown's *Illustrated Flora of the Northern United States, Canada, &c.*, being "*Western Pennsylvania (?)*, Ohio to Tennessee, west to Wisconsin and Missouri." Of the four species of which the genus is said to consist, I have only met with one other—*S. japonicum*, which seems difficult to procure. *S. Arnott*.

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT CAMBRIDGE LODGE, CAMBERWELL.

THE houses of R. I. Measures, Esq., in the Flodden Road, contain a very remarkable collection of Orchids, and afford a good example of what skill and attention can accomplish in one of the smokiest districts of London, where fogs and other inimical influences should render

tleyas and others of that class, previous records have been surpassed, for in one instance a pan sown only three weeks ago has numbers of growing seedlings, while numbers of others sown from one to two months ago are plentifully furnished with tiny plants, or greenish spherical bodies which form plants later.

The intermediate-house had a very fine show of bloom, the display being made up of very well-grown plants of *Miltonia vexillaria*, of various tints. The fine collection of these plants can boast

second crossing of *L. C.* × *Schilleriana* with *L. purpurata*.

Among the *Cattleyas* were the white *C. Mossii* Wageneri, the blush-white *C. M. Arnoldiana*, and some very dark-tinted forms. Others noted in the display were some *Cymbidiums*, *Odontoglossum citrosum*, a beautiful *Saccolabium ampullaceum Moulmeinense*, with six spikes of dark rose-coloured flowers; *Laelia tenebrosa* and other *Laelias* bearing sheaths freely, and some *Maedevallias*. The cool intermediate-house in two divisions contains

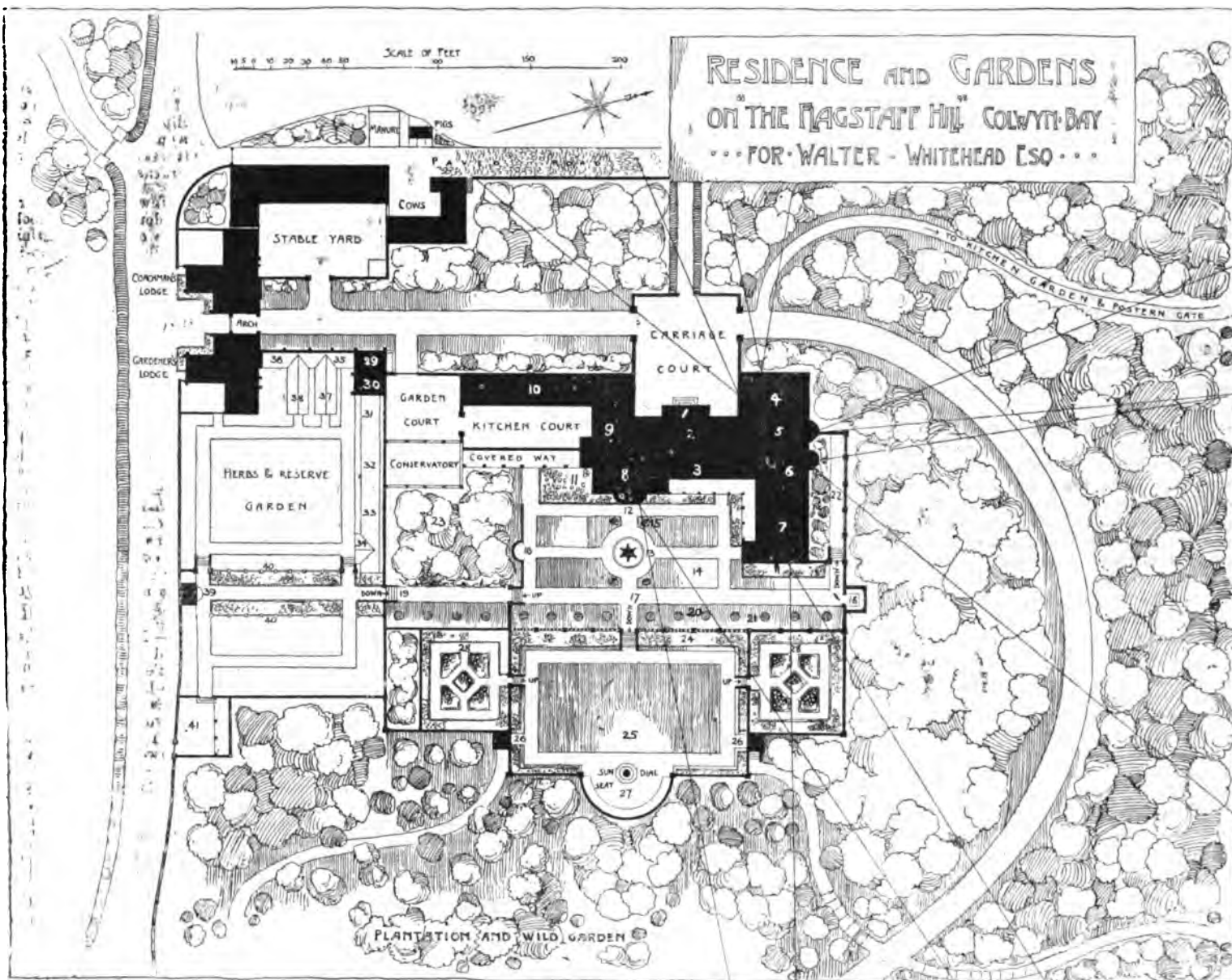


FIG. 127.—(SEE "BOOK NOTICE," P. 385.)

their cultivation more difficult than in the open country. It is greatly to the credit of Mr. H. J. Chapman, Mr. Measures' gardener, that he succeeds in growing in the most vigorous manner *Vandas*, *Aërides*, *Saccolabiums*, *Phalænopsis*, and other Orchids which Orchid cultivators in the country districts often fail with, and that the rarer varieties of *Cattleyas*, *Laelias*, and other showy Orchids are increased by division, and large numbers of hybrid Orchids are raised from seeds. The seed-pans are suspended in a warm, humid house, and this year in the matter of quick germination of *Lælio-Cat-*

of several of the beautiful *M. vexillaria superba*, which is nearest to the *M. v. Memoria G. D. Owen*, recently illustrated in the *Gardeners' Chronicle*. The most remarkable, however, is *M. vexillaria Cambridge Lodge* variety, which has purple lines formed ray-like on the segments around the column, the lip having also the yellow colour as on the labellum displayed. Prominent among the *Laelia purpurata* was the *L. p. Mrs. R. I. Measures*, with beautifully veined rose-purple petals; and *Lælio-Cattleya* × *Schilleriana Mrs. R. I. Measures*, a very handsome and richly-coloured flower, probably a

Vandas, *Aërides*, &c., in splendid condition, the centre table in each house being filled with vigorous specimens of the best varieties of *V. suavis* and *V. tricolor*, bearing healthy leaves down to the pots. Overhead are specimens of *V. Parishii* and *V. P. Marriotiana*, with flower-spikes, one large plant having seven heads or growths. Among others noted were two good plants of *Aërides Schroderi*, and overhead were suspended plants of rare forms of *Cattleya labiata*, including *C. l. R. I. Measures*; and *C. l. Mrs. R. I. Measures*, two of the best white forms with distinct colouring on

the lip; also a number of rare hybrid Cattleyas, &c. Masdevallias form a special feature, the collection being one of the finest, and contains perhaps the largest number of "botanical species." At the present time the showiest are the forms of *M. Harryana*, *M. ignea*, *M. Veitchiana*, &c. Among the hybrids, *M. x Gairiana*, with its fine yellow and orange flowers, was the showiest, and *M. x Ellisiana*, *M. x Measuresiana*, *M. x Stella*, *M. x caudato-Estrada*, and others were in bloom, as well as many good examples of the *M. Chimera* section, which are suspended from the roof in one of the houses. Among the lesser gems, known as botanical, there were in flower *M. O'Brieniana*, *M. Estrada*, *M. Wageri*, and other singular-looking species, some of the more delicate, small-leaved kinds, like *M. simula* and *M. muscosa* having grown into cushion-like specimens of much beauty. Interesting hybrid *Masdevallias* are progressing, the flowering of one between *M. fragrans* and *M. Veitchiana* being looked forward to with great interest. Along with the *Masdevallias* was a fine collection of *Octomerias*, *Pleurothallis*, *Stelis*, and allied plants, each genus giving some interesting species in bloom.

A collection of *Odontoglossums*, with some few in bloom, and in the house with them *Oncidium macranthum* and *Odontoglossum Edwardi*, were growing healthily. Another house held a fine collection of hybrid *Cypripediums*, many of which had been raised on the place, and including *C. x Chapmani magnificum*, one of the best of its class. Here an instance of careful propagation is to be seen in *Cypripedium Lawrenceanum* Hyeanum, one of the plants just starting strongly, being formerly but a leafless stump—the base of an old flower stem. An intermediate range contains a very interesting collection, including strong-flowering specimens of *Oncidium ornithorhynchum album*, and *O. incurvum album*, *Cymbidium Tracyanum*, *C. eburneo-Lowianum* and *C. Lowio-eburneum*. Another interesting set of seedlings came from crossing *C. tigrinum* and *C. Lowianum*, promising novelties. One small house is chiefly filled with plants of *Miltonia vexillaria*, well furnished with flowers; also specimens of *M. Schroderiana*, *M. Endresii* and *M. x Bleuana nobilior*, the last-named with eight flowers on a spike. Over the tank is a basketful of *Odontoglossum coronarium*, with eleven leading growths.

The warm house has a good show of *Miltonia Roezli*; another a fine batch of yellow forms of *Cypripedium insignis*, including *Sandera*, *Sanderiana* and *Ernesti*. Grown together are a fine batch of varieties of *C. x Leeannum*, *C. x nitens*, and allied hybrids; and among the many other marked examples of good culture were a fine lot of *Phalenopsis*, in splendid condition, the plants of *P. Schilloriana*, and the largest example of *P. violacea*. In flower were *P. tetraspis*, *P. grandiflora*, *P. amabilis* and *P. Luddemanniana*.

THE WEATHER IN WEST HERTS.

THE last ten days have been more or less warm, and on three consecutive days the heat was very great, the shade temperature rising on the 10th, 11th, and 12th, to respectively 80, 86, and 80 degrees. Only once before in June, during the last fifteen years, has such a high reading as 86 degrees been recorded here. The soil is at the present time only about one degree warmer at two feet deep, but as much as five degrees at one foot deep than is reasonable. Soon after eleven on the morning of the 12th, there occurred a sharp thunderstorm, but although the centre of the storm passed within a mile of my house, the rain unfortunately only lasted about ten minutes. During one of those minutes, however, it came down at the very exceptional rate of over 2½ inches an hour. There was another sharp thunderstorm the same afternoon, shortly before 5 p.m., which passed even nearer and lasted about five minutes. For four minutes rain and hail fell at the rate of nearly 2 inches an hour. During the passage of the first storm the temperature of

the air fell as much as 18°. The ground still remains very dry, in fact, no measureable quantity of rainwater has come through the bare soil percolation gauge for nearly three weeks, and none whatever through the gauge on which grass is growing, for nearly seven weeks. During the last nine days the sun has shone on an average for nearly nine hours a day—a capital record for the time of year. On the 10th the air proved exceptionally dry, the relative humidity at 3 p.m. being as low as 33—the June average for that hour being 61. A large bush of the wild Dog Rose growing in my garden came first into flower on the 8th, which is four days later than its average date in the previous fourteen years, two days later than last year, and the latest date since 1891. *E. M., Berkhamsted, June 12.*

Obituary.

MR. R. LLOYD.—We regret to announce the death of Mr. R. Lloyd, gardener at the Brookwood Asylum, Woking, Surrey, on May 25 last, from cancer, after an illness of about three months. The deceased was head gardener at the Asylum for thirty-three years, he having come when the estate was still a common, and under his directions it has become a garden of beauty and productiveness.



HOME CORRESPONDENCE.

THE SHROPSHIRE HORTICULTURAL SOCIETY.—It is pleasing to note in a recent issue of the *Gardeners' Chronicle* that the superfluous offering of "points" to count for non-flowering plants and cut flowers amongst the champion fruit classes is to be done away with. Is this not a ridiculous case of putting "Pelion on Ossa?" Surely there are prizes for plants and cut flowers offered *ad lib.* by the Society in every conceivable form, without items being introduced to embarrass the judges in those keenly-contested competitions for Grapes. Those who were present at the Shrewsbury show of last autumn, saw the ridiculous position the three judges of this department were placed in, with their jackets off, dancing backward and forward in front of the stands long after the other judges had finished in their respective sections, and the public were awaiting admission to the show cents. The table decoration, with its white table-cloth, gold or silver dinner-services, and its liberal and tasteful accompaniment of Flora and Pomona, was everything that could be desired. These classes, it may be remembered, came into existence at the Royal Horticultural Society's show at Leicester, where competitors staged their exhibits where they could. At the Society's next show a special tent was provided for these classes. *W. Miller, Berkswell.*

THE BLACK CURRANT BUD-MITE.—The very interesting communication respecting this pest, which Mr. Cousins has sent you from Wye College, is so far the most practical one of its kind yet furnished to the press. But that portion which describes the fumigation of young bushes in a heap under a tarpaulin seems to be the most valuable. Very recently at the Drill Hall I had the pleasure of conversing with that well known fruit-grower of Swanley, Mr. Wood (who farms some 600 acres) on his experience of the Currant-mite. He said that the practice of cutting down the bushes in the winter, with the object of securing entirely new and clean growth the following year, had resulted in failure, the new shoots being found to be badly infested. But he mentioned that a neighbour of his had sacrificed a great breadth of bushes in the month of June, 1898, with the result that the

growth or suckers which then broke up were quite clean the following year. Whether such freedom from the insect continued this year Mr. Wood did not know, but he purposed finding out. Perhaps Mr. Wood would, should he see this note, kindly tell us the result. *A.*

THE WEATHER IN NORTH CORNWALL.—The rainfall here during May amounted to 2.21 inches, of this total 1.47 inches fell during the first eight days. There were nineteen rainless days, and the greatest fall during twenty-four hours was .78, measured at 9 a.m. on Thursday, May 3. The temperature, as registered by a thermometer 3 feet from the ground, and facing due north, ranged from 32° Fahr. on the 12th, 15th, 17th, 19th, 20th, and 28th, to 69° on the 30th. The barometric pressure has been remarkably even, the lowest reading was 29.10 inches at 8 a.m. on May 3rd, and the highest 30.35 inches at 1 p.m. on the 29th. On the whole, it has been a bright sunny month and very dry, with generally a rather cold wind from the north-east, occasionally north-west, and for a few days at the commencement of the month south or south-west. The partial eclipse of the sun on May 28 was, with the aid of a smoked glass, plainly visible. During the eclipse it was distinctly colder. *A. C. Bartlett, Pencarrow Gardens.*

GARDENING SITUATIONS.—Few practical readers of the *Gardeners' Chronicle*, no doubt, omit to look over the weekly advertisements of those wanting places, or have places to be filled. Surely it is long since such a remarkable change was evidenced as was seen in the issue of June 9, when the places vacant exceeded the applications for places by one-third. Has the war affected the gardening labour market, and made gardeners (young ones, at least) scarce? or have better wages elsewhere led to young men turning their attention to other sources of a livelihood than gardening offers? It does not seem as if examinations had overburdened the labour market with youths, whilst so far as either class of advertisement is concerned, ladies seem almost out of the running. Still, one cannot fail to note the fact that few head gardeners seem to be required, whilst the numbers seeking such positions are considerably in excess. The principal dearth seems to be amongst young men. But again, the greater portion of the situations open seem to be rather in trade than in private establishments, and if young men do not crave for such positions, it is just possible that in the trade nurseries they get better pay. *A. D.*

MECONOPSIS NEPALENSIS.—I understand that the beautiful sulphur-flowered plant which has hitherto gone under this title turns out to be incorrectly named, and is to be known in future as *M. paniculata*. [*Index Kewensis* retains the name *M. nepalensis*, and does not give the other. *Ed.*] The true *nepalensis*, of which seed came from Sikkim last year, is now in flower here. It gives the same good contrast between soft green foliage and rusty brown stem, which is given by other members of this desirable family. But the flowers are a great disappointment; they are produced freely from the axils of the leaves, and are of a washy claret colour, even poorer than that of *Geranium phaeum*. *A. K. B., Neston, Cheshire.*

PRIMULA JAPONICA.—Very unusual was the combination of noble white and pink-flowered spikes of *Eremurus*, and plants in good bloom of *Primula japonica*; yet that was the conjunction which Messrs. Veitch & Sons presented at the last Drill Hall meeting, and which elicited so much admiration. The *Eremurus* spikes came from Langley, but the *Primulas* from the firm's new nursery at Feltham. Learning that these fine plants had been literally grown in a ditch, I looked in at this nursery and found that was the case. The plants I then saw were all apparently in 5-inch and 6-inch pots; and every one of some 120 at least, standing two deep in a ditch, through which there was a constant flow of water, the pots being quite covered by it, because here and there with the aid of boards small bays were made to maintain water levels. The whole of these plants had been wintered in cold frames, but a few weeks since were stood in the water as mentioned, and the way they liked the pot immersion was evidenced by the noble foliage, the tall flower-stems, and the singularly rich colouring of the flowers. In some gardens, notably at Abinger Hall, both this fine *Primula* and *P. rosea* grow all the year round, practically in water. That would probably not be

desirable for pot plants, but when in growth and frosts are gone, it is evident that *Primula japonica* revels in liquid. Evidently, as seen at Feltham, it is a very practical testotaller. D.

HORSE-CHESTNUTS.—Regularly as pilgrims flock to Mecca, though not as a rule quite so devotedly, Londoners go in vast numbers yearly to Bushy Park to see the famous avenue of Horse-Chestnuts there when in full bloom. Chestnut Sunday is one of the cockney Saint's days, and as his idol is just then one of such very unobjectionable form, there is some room for regret that it seems to be rapidly falling to decay. Really, the trees are for Horse-Chestnuts very old, and being backed by a double row of lofty Limes, the drain on the soil is great. Strong winds also play havoc occasionally with the trees. I should like to suggest, especially after seeing just recently how tall and beautiful were the scarlet-flowered Chestnuts on Egham Hill and how numerous, that the Crown Authorities would do well to plant a row of these half-way between the carriage road and the old Chestnuts on either side, so that they may in time replace the now fast decaying trees of the old white variety. Of course, the soil would need to be well prepared for their reception, but there is ample space at disposal. At same time a new planting of white trees might replace the old ones. Kingston.

TOMATO-HOUSES.—There have always been differences of opinion as to the form of house most suitable for Tomato culture, some preferring large, others small houses. I have grown them in houses 27 feet and 10 feet in width, and have always advocated the small house in preference to large ones for plant and fruit culture. And I am satisfied that a small house is best for Tomato cultivation. Last week I called upon Mr. Dyer of Mytobett, who has long been known as a successful grower of Tomatoes, and there I saw in a house 100 feet long, 10 feet wide, and 8 feet high, one of the best crops I have ever seen at this season. The plants are planted on a raised bed about 1 foot from the floor, and stand about 18 inches from the glass, trained on a trellis similar to those used for Cucumbers. They are started on the one-stem system until some little distance up the roof, when two stems are allowed to develop. The first clusters of fruit touch the soil, and within a space of 3½ feet most of the plants have eight large clusters of fine fruit, the fruits on one cluster that I counted numbered twenty-three. The variety is one of Mr. Dyer's raising, and it is very early, a free setter, and a most prolific bearer, just the ideal of a first-class market Tomato. There are other houses of a larger size, containing other varieties, but Dyer's Seedling is the finest. J. Bennett, Farnborough.

LÆLIA BOOTHIANA.—I noticed in the *Gardeners' Chronicle* of June 2, p. 345, Mr. W. H. Young considers *Lælia Boothiana* to be a shy flowering plant, and one that is seldom seen in bloom. I send you a spike of five flowers out from a plant that has six flower spikes, five spikes with four flowers each; in all, twenty-five flowers. This plant flowers freely every year, and the treatment afforded is a rather dry one. The plant is seldom repotted. A gentleman who saw it in bloom some three years since said we should never flower it again like it was then. It then had four flower-spikes, but it is now much finer. I keep it in the Cattleya-house, and it has no special place or position. Edw. C. H. Pidsley, Ashlands Gardens, Newchurch, Manchester.

ACALYPHA HISPIDA (SANDERIANA).—Will those readers of the *Gardeners' Chronicle* who have successfully grown this plant kindly state under what conditions they find the plant does best. The firm that first sent it out informs my employer that it can be successfully grown in a cold greenhouse, and having a good batch of plants doing well in a stove temperature, I was instructed to grow them in a cold-house, and palpably failed. I find it does best in a stove temperature, shaded from strong sunlight, potted moderately firm in a mixture of good rich loam, leaf-soil, and sand. A. Taylor.

ROCK GARDENS.—The cultivation of true Alpines and other similar plants has become fashionable of late years, and the fancy is likely to endure as it is an interesting feature, particularly in early summer. At the R.H.S. show at the Inner Temple this year, there was in the exhibit of Messrs. Carter & Co. sufficient evidence in a small way to

show what an attractive display can be made with Alpines. One of the places at which these plants may be seen to perfection is Dulwich Park, where, facing either entrance, is a triangular-shaped rockery, which, from its blaze of colour composed chiefly of Saxifragas in variety, Aubrietias, Alyssum saxatile, and Iberis sempervirens, all flowering profusely, never fails in attracting the attention of the visitor. On this rockery Saxifraga Wallacei is particularly fine; S. muscoides has only been planted this season, and is not yet established so as to show much bloom. S. paniculata, which bears a branching spike with many flowers; S. ligulata var. incurvifolia, S. McNabiana, S. leptophylla, S. zelandica, and the close-growing, carpet-like S. hypnoides are fine and showy varieties. Of Aubrietias, I may name A. Leichtlini, which is in perfection; and other effective species and varieties are Greca, Hendersoni, Campbelli, and the newer Souvenir de Wm. Ingram. A few years ago there was a good collection at Finsbury Park, where numerous species of Primula formed a special feature. These seem to have been removed, and their places filled with commoner plants. A new rockery has, however, been made on the opposite side of the lake, and it is to be hoped that in the near future a better collection may be formed there that will constitute an object of interest to some of the many visitors to this park. E. T.

SOCIETIES.

ROYAL HORTICULTURAL Scientific Committee.

JUNE 5.—Present: Dr. M. T. Masters (in the Chair); Mr. Veitch, Rev. W. Wilks, and Rev. G. Henslow, Hon. Sec.

Tulipa Gesneriana diseased.—Some roots received from Mr. Mann, Penhill Close, Cardiff, were forwarded to Dr. Wm. G. Smith for examination and report.

Iris with diseased roots.—Mr. Wilks brought some plants showing premature decay in the foliage. He observed that he had received reports from all parts of England of a similar condition among *Iris* of all sorts. The roots appeared to rot close to the rhizome. They were also sent to Dr. Wm. G. Smith.

A *synanthic Odontoglossum*.—A flower from a spray on a plant of *O. triumphans* (?), sent by Mr. Pitt, illustrated the twin condition of two coherent flowers; the columns, however, were free from each other above the combined ovaries, as well as the two labellums.

Fendlera rapticola.—Mr. Gumbleton exhibited a flowering branch of this unique shrub, there being but one species to the genus. It is a native of Texas and New Mexico, and a near ally of *Philadelphus* or *Syringa*, as popularly known; but while the ovary is inferior in the latter genus, it is superior in *Fendlera*.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JUNE 5.—Members of the committee present were:—Messrs. G. S. Ball, G. W. Law-Schofield, W. Duckworth, S. Gratrix, A. Warburton, W. Holmes, C. Parker, R. Johnson, J. Cypher, J. Robson, J. Leemann, and P. Weathers (Hon. Sec.).

The meeting of the Society on this occasion was held at the Royal Botanical Society's Gardens, Old Trafford, and a fine display of groups, &c., was the outcome of the experiment.

G. SHORLAND BALL, Esq., Wilmslow (gr., Mr. Gibbons), had a few good exhibits, the best of which was *Odontoglossum* × *Lochristiense*, a variety with much larger flowers than as yet seen, and a prominent fringing to the petals (First-class Certificate). A good variety of *O. × Wilckeanum* came from the same collection, to which an Award of Merit was made, while a Cultural Certificate was awarded to *Epidendrum* (Disarium) bicornutum. Mr. Ball also showed his *Cypripedium callosum* var. *Sanderi* (Vote of Thanks for group).

J. LEEHMAN, Esq., West Bank House, Heaton Mersey (gr., Mr. Edge), made a fine display of plants, amongst which were several beautiful hybrid *Lælio-Cattleyas*, *Odontoglossums*, &c. L.-C. × *Eudora* alba was singled out by the committee as the best plant in the group, and was given a First-class Certificate. Awards of Merit were made to L.-C. × *Edouard André*, *Brassavola Digbyana* (a very fine form), L.-C. × *Martinetti* (*O. Mossii* grandis × *L. tenebrosa*), and *Cypripedium* × *Helvetia* (A Silver-gilt Medal was awarded the group).

G. W. LAW-SCHOFIELD, Esq., Rawtenstall (gr., Mr. Shill), received an Award of Merit for L.-C. × *Edouard André*.

S. GRATRIX, Esq., West Point, Whalley Range (gr., Mr. McLeod), exhibited a very fine lot of plants, gaining First-class Certificate for his *Lælia purpurata* illustris, a richly-coloured form, with flaked petals; *Cattleya Mossii* Victoria also gained a First-class Certificate. Awards of Merit were given for *Lælia purpurata* var. *nobilior*, and for *Cattleya Mendellii* "Colonel Plumer."

Mrs. GRATRIX exhibited a fine *Cattleya Mossii*, called Lord Roberts, which was admired.

T. BAXTER, Esq., Morecombe (gr., Mr. Roberts), staged a good lot of *Odontoglossums*, including forms of *O. Halli*, *O. triumphans*, and various forms of *O. crispum*. A Silver Medal was awarded to the group.

T. STATTER, Esq., Stand Hall, Whitefield (gr., Mr. Johnson), gained an Award of Merit for L.-C. × *Eudora*. The same amateur staged a fine form of *C. Mossii* *Reineckiana*.

O. O. WRIGLEY, Esq., gained a Silver Medal for a nicely-grown and staged group of plants, chiefly noticeable in which were forms of *Cattleya Mossii*, *Cypripedium callosum* var. *Sanderi*, some fine pieces of *Dendrobium Bensonii*, &c.

A. WARBURTON, Esq., Vine House, Haslingden (gr., Mr. Lofthouse), had a few choice orchids, the rarest of them probably being *Odontoglossum crispum* *Luciani*. It is a finely-spotted form. The plant exhibited consisted of about three small pseudo-bulbs, and the flowers were likewise small. The plant figured in the *Gardeners' Chronicle*, December 9, 1899, p. 481, fig. 126, seems to be a larger form of the plant, and resembles it in many ways (First-class Certificate). *Cypripedium callosum* var. *Sanderi* came from the same collection. *Lælia purpurata* var. *fastuosa* and *Cattleya Mossii* *Princess of Wales* received each an Award of Merit.

E. H. SEDDON, Esq., Woodbourne, Brooklands (gr., Mr. Milne), had a good showy group, consisting of *Cattleyas*, *Odontoglossums*, &c. *Cattleya Mossii* var. *aurea* was a fine form, having a rich yellow throat; a fine plant of *Cologyne pandurata* received a First-class Certificate. A Silver Medal was awarded for the group.

R. ASHWORTH, Esq., Newchurch (gr., Mr. Pidsley), staged a handsome collection of plants, several being very meritorious. First-class Certificates were awarded to *Sobralia Kienastiana*, and *Odontoglossum triumphans* var. *Leonidas*. An Award of Merit was given to *Odontoglossum crispum* var. *Ellisium*, and a Silver Medal was awarded to the group.

Mr. J. CYPER, Cheltenham, exhibited a few choice plants, and received Awards of Merit for *Cattleya Mossii* "Distinction," *Lælia purpurata* var. "Lady Roberts," a fine rich flower; and a beautiful variety of *Thunia Beccaria* *superba*.

Messrs. F. SANDER & Co., St. Albans, had a lovely lot of plants, notably *Odontoglossum crispum* *Federata*, *O. c. Rt. Hon. Joseph Chamberlain*, and *Miltonia vexillaria* *British Queen*, all of which received Awards of Merit. A Silver Medal was awarded for the group.

M. A. A. PEETERS, Brussels, had the beautiful *Eulophiella* *Peetersiana*, seen for the first time in Manchester, and which received the First-class Certificate it richly deserves. Awards of Merit were given to L.-C. × *Massangeana* (*L. tenebrosa* × *C. Schilleriana*), L.-C. × *Herode* (*O. O'Brieniana* × *L. elegans* var. *Turneri*), L.-C. × *elegans* var. *maxima*, *Cypripedium* × (*Lawrenceanum* × *Rothschildianum*), and a very distinct *Cattleya Mossii* var. *ocerulea*. The group was awarded a Vote of Thanks.

Messrs. HUGH LOW & Co., Bush Hill Park, Enfield, received an Award of Merit for *Cattleya Mossii* var. *bellissima*, and the same honour for *C. Mossii* var. *Excellent*.

Messrs. STANLEY, ASHTON & Co., Southgate, exhibited a good form of *Cattleya Mossii* called Harold.

JOHN COWAN & Co., Gateacre, had a dozen good plants. *Cattleya Mendellii* Lord Kitchener, and C. M. Sir Alfred Milner receiving Awards of Merit. A Vote of Thanks was given for the group.

Mr. W. HOLMES, Timperley, exhibited *Lælio-Cattleya* × *Hermann Holmes* (*L. purpurata* × *C. Schilleriana*); the flower is intermediate in form, and very distinct in character; the segments of the flower being yellowish with brownish markings.

Mr. J. ROBSON, Altrincham, showed a good hybrid *Cypripedium*, between *C. Gowerianum* and *C. Rothschildianum*, and received an Award of Merit.

Mr. A. J. KEELING, Bingley, Yorks, received an Award of Merit for L.-C. × *Hippolyta aurantiaca*, a very good form, being almost entirely of an orange colour. P. W.

THE SCOTTISH HORTICULTURAL ASSOCIATION.

JUNE 5.—At a meeting held on the above date, Mr. A. J. SELF, Comely Bank Nurseries, Edinburgh, read an interesting paper, entitled "A Chat about Alpine Plants." The title was well chosen, for the speaker dealt with his subject in an entertaining and instructive manner. As Mr. Self pointed out, there are still nurserymen who do not know what Alpine plants are, but such are surely few in these days when the public interest in these plants is spreading fast.

Mr. JAMES ANDERSON, from Lord Cowper's garden, at Panshanger, Herts, exhibited flowers of two varieties of *Beaumontia*; and Tree *Ponies*, *Tulips*, *Spiraeas*, and other flowers were sent from Togher House, Ireland, by Mrs. ALOR. Messrs. TODD & Co., Maitland Street, Edinburgh, showed a potful of the "Marchioness" white *Viola*; also a fine lot of cut flowers. From Mr. SMALL, Blackford Park, came a double *Clematis* "Duchess of Edinburgh," and some flower trusses of *Rhododendrons*.

A very fine white seedling *Gloxinia* was sent by Mr. GEO. CHAPLIN, St. Leonard's; whilst fine samples of Vanack Cabbage and Methven's late June Broccoli were exhibited by Mr. MAINE, gr., Craigmillar.

Five new members were proposed.

Congratulations on the British occupation of Pretoria were sent to Her Majesty and Mr. A. J. Balfour. The Secretary received the following reply from Balmoral:—"The Queen thanks you for the loyal congratulations on the occasion of occupation of Pretoria by Her Majesty's troops. (Signed) A. BIGGE."

CAMBRIDGESHIRE HORTICULTURAL.

JUNE 12.—In one of the most beautiful and well-kept of English College Gardens, that of King's College, Cambridge, which at the present time is a delightful flower show in itself, this Society, which was established so far back as 1824, held its usual summer exhibition. In common with other Societies, this old-established one has had to suffer from a diminution of exhibitors, and of collections of plants, which were at one time the boast of the neighbourhood, but have become dispersed, and but few exist to take their places. The date was a little early in some respects, but it is deemed expedient to hold it during the continuance of certain University functions. The weather wore a threatening look early in the day, but it cleared up, and remained very fine.

A leading feature of the exhibition was the classes for Roses, special prizes being offered by the Lord Lieutenant of the county and others. Mr. GEORGE PRINCE was the only exhibitor in three classes open to all, and brought such fine illustrations of the Oxford Tea Scented Roses as to win the first prizes, with a good deal to spare. He was 1st with thirty-six and twenty-four varieties, and also with twelve Teas and Noisettes. In these classes were very fine blooms of *Maréchal Niel*, *Comtesse de Nadailac*, *Souvenir d'Elise Vardon*, and *Souvenir de S. A. Prince*. The Bride, Anna Olivier, Medea, Innocente Pirola, Catherine Mermet, Alba Roses, Princesses of Wales, Muriel Graham, Safrano, Princess Beatrice, Mdlle. M. Arnaud, Cleopatra, Ernest Metz, Empress of Russia, Baron Job, and Reine Marie Henriette. Roses were shown in a few classes by members, and there were Iris, Fancy and Show Pansies, Pyrethrums, &c. From Mr. W. A. BRISCOE came a box of good illustrations of cut, stove, and greenhouse flowers; and zonal Pelargoniums in single trusses and bunches, were also in good character.

Plants were represented by groups of 100 superficial feet. Mr. P. L. HUDSON, Pampisford, had decidedly the best, though a little formal in arrangement, zonal Pelargoniums in pots. In one class for twenty-four, and in another for twelve pots, 6 inches in diameter, furnished bright patches of colour. There were small but well-grown specimens of Tuberous Begonias, both double and single; and also of Fuchsias. Gloxinias were a little past their best. Stove and greenhouse plants were somewhat poor. The best specimen was a fine piece of Stagshorn Fern. Exotic and British Ferns were small, but in good condition.

Among the limited quantity of fruits shown, were some very fine Royal Sovereign Strawberries from Messrs. BRISCOE & DOWNS. In the vegetable classes were good Cucumbers and Tomatoes, with baskets of salad; that which gained the 1st prize for Mr. ARTHUR MATHEW, the Secretary, was admirable; everything in the best condition.

Miscellaneous exhibits materially helped the show; foremost was an excellent strain of Gloxinias from Mr. W. H. ARTHURPE, Hills Road, Cambridge, which were very highly commended. Mr. R. H. BATH, Ltd., Wisbech, had a large collection of cut flowers, including Iris, Pyrethrums, Violas, &c., and a batch of plants of his yellow Carnation, Lord Roberts, which was awarded a Certificate of Merit. Mr. GEORGE PRINCE astonished the visitors by staging superb bunches of Sweet Peas, and magnificent blooms of *Maréchal Niel* Roses. Mr. A. EDWARDS, florist, Arnold, Notts, had examples of his Edwardian table and room decorations; and Mr. J. WILLIAMS, Oxford Road, Ealing, illustrations of his useful rural flower-holders, filled with flowers in a very elegant manner. R. D.

ANCIENT SOCIETY OF YORK FLORISTS.

ANNUAL OUTING.

For several years past the more active members, accompanied by their lady friends, have had an "outing." Amongst places hitherto visited, may be named Castle Howard, Duncombe Park, Harewood, Newburgh Park, Grimston Park, and Temple Newsum. The venue this year was Byram Park, near Pontefract. Byram is the long-established Yorkshire home of the Ramsden family, and the present owner is Sir John Ramsden.

Byram gave a great amount of pleasure and interest to the whole company. There are plenty of proofs that both the owner of Byram, and his intelligent gardener, Mr. G. Taylor, take much interest in horticulture. The grounds are well kept, and well furnished with splendid forest-trees and shrubs, both flowering and foliage. There is a fine lot of well-kept and well-arranged glasshouses both for fruit and plant cultivation. In one of the Peach-houses there is a fine tree of the true *Violette Hative* Peach, which annually yields large crops of very fine fruit. The tree in question nearly fills a house some 40 feet or more in length. It is a standard—that is, it was originally worked on a 6-foot stock. This stock or stem is fully 20 inches in circumference at 3 feet from the surface of the border. It has been planted about forty years. I mention this Peach, because on soils where it succeeds it is one of the very best Peaches to grow for use from midsummer onwards. It has very firm flesh, hence is a good packer, and unlike some of the newer varieties now grown, is not only a noble looking fruit, but fit. The soil at Byram is of a limestone nature. In the plant houses were fine healthy stove and greenhouse plants and the kitchen garden crops looked well. *Yorkshire Gardener*.

THE YORKSHIRE GALA.

JUNE 13, 14, 15.—The forty-second annual horticultural show in connection with the Grand Yorkshire Gala was held on the above dates in the Bootham Field, York. Just as the great Metropolitan show of the Royal Horticultural Society in the Temple Gardens is a means of horticultural education to the whole of the kingdom, so is the exhibition held at York a source of education, interest, and pleasure to thousands of people in the great county of Yorkshire and adjoining shires, who have not the opportunity to see a horticultural display unless it be made in their midst. Happening so soon after the Temple Show, one can hardly help comparing the one with the other, or we would rather say, of contrasting them. Whilst that of the Royal Horticultural Society is a competitive show only in a limited sense, that at York is essentially competitive. Almost every exhibit there was staged in competition for definite money prizes; and in the case of nurserymen's exhibits even they were more or less competitive, because only four Gold Medals were awarded, and exhibits from the trade that failed to get one of these had no other medal or money awarded them. We are not concerned for the moment, however, with the ethics of horticultural exhibitors, and it is certainly not possible to obtain an exhibition of importance in provincial cities and towns like York, Shrewsbury, or Wolverhampton, by such means as are adopted in the case of the Temple Show in London.

The York Gala Committee with their chairman, Sir Christopher Milward Knight, J.P., and their secretary, Mr. Simmons, and other officers, have shown considerable enthusiasm and courage in continuing their exhibition in the face of very serious misfortunes, such as that three years ago when the tents and many of the exhibits were destroyed by a hurricane. We could wish that the show this year had been favoured with more settled weather, especially on the first day; for owing to the circumstance that next week the Royal Agricultural Society's exhibition will be held in York, it is feared that the attendance at the Gala will suffer, and the Committee will again be unable to make a profit.

The York show is remarkable in several respects, and in ways that vary with the district the visitor has come from. A London visitor marvels to see so many fine Pelargoniums, and other such specimen plants now so seldom seen in the Metropolis; whilst a visitor from Shrewsbury would doubtless be surprised to see such a large display of Orchids and comparatively so little fruit.

We should regret even to be suspected of grumbling at the Horticultural Committee, who are exceedingly courteous, but would suggest that on a future occasion it would be a convenience to the general public as well as to the representatives of the Press if the addresses of exhibitors were put upon the prize-cards. Also that plants of a class should be placed together, and each class placed sufficiently distinct from the others. Nothing is more inconvenient for the judges, reporters, or the public than the grouping of one exhibitor's plants together, when some of them belong to one class and some to another. Exhibitors and Societies' Committees alike wish for correct reports, and under the best arrangements the work of reporting promptly is sufficiently difficult. The area of the tents, all of which were united with each other, were in feet as follows:—100x100, 120x60, 180x60, 150x60, 150x60, and 120x50. Usually about 55,000 people visit the show during the three days. The Committee, Officers, and Judges lunched on the ground upon the first day, when the President (Alderman Rymer, J.P., Lord Mayor of York), and the Very Reverend the Dean of York, were amongst those who spoke.

ORCHIDS.

Orchids were very well represented, as well by competitive as non-competitive collections. The best "Table of Orchids" upon a space of 12 feet by 5 feet, cut blooms or plants, but "beauty of arrangement to be the test," was shown by Mr. J. CYPHER, Cheltenham. The groundwork was very largely composed of varieties of *Cattleya Mossii*, and at the back, upon two wire archways, some six feet high, were placed in glass cases some flowers of *Lælia purpurata*, *Dendrobium Dalhousianum*, *Cattleyas*, *Odontoglossums*, *Cypripediums*, &c. The group further included *Calanthes*, *Vanda teres*, *Miltonia vexillaria*, *Cypripedium niveum giganteum*, &c. The arches or screens were the prettiest feature of the exhibit, a *Cattleya* at the base seeming to need further relief.

The 2nd prize was won by Mr. John Robson, Altrincham, who had a bank of plants in which the principal feature were the *Odontoglossums crispum*, and *O. Pescatorei*. In a glass shade were *Cypripedium Lawrenceanum* Hyeanum, and other choice *Cypripediums*, *Cymbidiums*, and *Oncidiums*, also showed to importance in this group. There were two further exhibits, but they were not important, and the 3rd prize was withheld, and a fourth awarded in its place.

Ten Orchids in bloom distinct.—Mr. JAMES CYPHER, had again 1st prize here, showing *Lælia purpurata*, and *L. p. alba*, *Thunia Marshalli* superba, *Cymbidium Lowianum*, *Odontoglossum crispum*, *Miltonia vexillaria*, *Cattleya Mendellii*, *Cypripedium Lawrenceanum*, *Cattleya Mossii splendens*, and *Lælia tenebrosa*; 2nd, W. P. BURKENSCHAW, Esq., West Hill, Hessele (gr., Mr. J. T. Barker). We noticed in this exhibit *Dendrobium atro-violaceum*, *Oncidium superbiens*, *Thunia Veitchiana*, *Cypripedium Rothschildianum*, &c.; Mr. JOHN ROBSON, nurseryman, Altrincham, was awarded a 3rd prize; 4th, the Executors of W. B. STUART, Esq., Spetton Hill, Leeds (gr., Mr. Levi Hartley).

Six Specimens.—Mr. CYPHER won here again, and his varieties were *Lælia purpurata*, *L. p. Niobe*, *Thunia Marshalli*, *Cypripedium Lawrenceanum*, *Cattleya Mossii grandia*, and *Miltonia vexillaria*; 2nd, W. P. BURKENSCHAW, Esq., whose group included *Cypripedium villosum*, *Cattleya Mossii Reineckiana*, &c.; Mr. JOHN ROBSON was 3rd.

There was another class for six specimens, but these were to be new or rare varieties, and made-up plants were not admissible. The 1st prize went to W. P. BURKENSCHAW, Esq.; and the "new or rare" plants were *Cattleya intermedia alba*, *C. Mendellii* Maudslayi, *C. Mossii Reineckiana*, *Lælia-Cattleya Hippolyta*, *L.-C. Welliana albidia*, and *Phaius bicolor purpurascens*; the 2nd prize was won by WALTER BATEMAN, Esq., The Ridge, Pannal, Leeds, who included *Lælia purpurata alba*, and a variety of *L. tenebrosa*.

Three Orchids and a single specimen.—Three Orchids in bloom, new or rare, as in the preceding class, were best from W. P. BURKENSCHAW, Esq.; but as staged it was next to impossible to decide which particular specimens were the ones exhibited in the class; Colonel HARRISON BROADLEY, was 2nd.

The best single specimen was a fine one of *Sibbaldia maritima*, from Colonel HARRISON BROADLEY, Welton House, East Yorks (gr., Mr. Chas. Lawton).

Four specimens, distinct (Messrs. Backhouse's prizes).—W. P. BURKENSCHAW, Esq., was 1st also in this class, with nice specimens of *Cattleyas* and *Epidendrum vitellinum majus*; 2nd, Mr. J. McIndoe, gr. to Sir J. W. PEASE, Hutton House, Guisborough.

GROUPS OF PLANTS.

There is always spirited competition at York, in the class for a miscellaneous group of plants arranged to produce artistic effect. The space permitted to each exhibitor was 300 square feet, so that the groups were not the largest we see during the season. But they were a very pretty and important feature, and there was little to choose between the three best groups. The judges after much difficulty gave the premier prize to one from E. B. FAHER, Esq., J.P., Belvedere, Harrogate (gr., Mr. W. Townsend). The central feature of this design was an improvised cork-covered basket or stand, supported by four rustic and crooked pillars. In the basket was a fine Palm, and its sides and pillars were adorned with very choice *Odontoglossums*. Throughout the rest of the groups, the surface was relieved by tall specimen plants, and others made into columns. The Palms, *Codiaeums*, and *Odontoglossums* were the choicest of the plants in the group.

Next in point of honour was placed an exhibit from Mr. W. VAUSE, nurseryman, Leamington. This design included a sort of pyramidal arrangement in the centre, with round cork-covered bridges extending from the front corners of the group towards the centre; and the exhibit would have been exceedingly good had it been carried out in a lighter style. The centre feature was too overpowering, otherwise the plants used in the group were extremely good specimens. The 3rd prize was awarded to the brightest looking group of the lot, and the *Codiaeums* that adorned it were of very superior colour. This exhibit lost a better place owing to the arrangement of the plants, showing less of that style at present popular, as well as common, in the construction of these miscellaneous groups at exhibitions, which are generally supposed to represent the most exemplary method of grouping for effect. Mr. J. McIntyre, gr. to Mrs. GURNEY PEASE, Woodside, Darlington, obtained the 4th prize; and the other exhibitors were Messrs. B. SIMPSON & SON, Selby.

There was a number of smaller groups of particular kinds of plants, arranged also for effect, upon a space in most cases of 12 ft. by 5 ft. The best of these were the following:—Group of Gloxinias from B. LATHAM, Esq., Elm Bank, York (gr., Mr. John Haw); a group of Roses from Mr. J. W. HUTCHINSON, Kirbymoorside; a superb group of *Malmays* and other Carnations from A. WILSON, Esq., Tranby Croft (1st prize); a group of Carnations from Messrs. M. CAMPBELL & SON; a group of Roses from Messrs. JACKSON & SON, Bedale; and a group of *Calceolarias* from Mrs. LLOYD, Lingcroft, York (gr., Mr. Geo. Skill).

SPECIMEN PLANTS.

The most successful exhibitor in the class for twelve stove and greenhouse plants in bloom (Orchids excluded) was Mr. J. CYPHER, Cheltenham. He had *Bougainvillea Cypheri*, *Pimelea Hendersoni*, *Clerodendron Balfourii*, *Eri* a *Cavendishiana*, *Brumfelsia eximia*, *Anthurium Scherzerianum*, *Erica ventricosa alba tincta*, *Phenocoma prolifera* Barnesii, *Erica ventricosa magnifica*, *Anthurium Scherzerianum* Wardii, *Erica ventricosa grandiflora*, and *Aphelandra macrantha* roses; altogether a very fine lot. Mr. W. VAUSE was 2nd, and included a pretty *Allamanda*, *Clerodendron Balfourii*, *Visca* roses, *V. alba*, &c.

The best collection of six such plants was also from Mr. CYPHER. His *Bougainvillea Sanderiana* was of a capital colour, and the rest of his plants (mostly identical in species with some in the preceding class) were good; Mr. W. VAUSE was 2nd.

Mr. J. CYPHER was also 1st for three plants, showing *Phenocoma prolifera* Barnesii, *Anthurium Scherzerianum*, and *Erica Cavendishii*.

The best single specimen stove plant was one of *Anthurium Scherzerianum*, from Mr. W. VAUSE. It was a well flowered plant, but the green stalk vied with the scarlet spathes in an attempt to attract notice; and the same may be said of another specimen of the same species from Mr. CYPHER, who was 2nd; 3rd prize to Mrs. GURNEY PEASE.

The best single specimen greenhouse plant was one of *E. ventricosa magnifica*, from Mr. W. VAUSE.

The class for "six ornamental fine foliage or variegated plants" brought some splendid specimens from Mr. J. CYPRIAN. Some of his Palms were about 10 feet high. There were *Kentia Forsteriana*, *K. australis*, *K. Belmoreana*, *Livistona*, two excellent *Codiaeums*, and others. These were raised around a high stand in a bell-shaped tent. The 2nd prize was taken by Mrs. GURNEY PEASE, and included some very fine Palms and *Codiaeums*.

The best trio of ornamental fine foliage plants was from Colonel HARRISON BROADLEY, who had a marvellous specimen of *Kentia Forsteriana*, also very good plants of *Dasylirion gracile*, and *Codiaum majesticum*; the 2nd prize was won by Mrs. GURNEY PEASE, whose best plant was one of *Cycas revoluta*. The *Kentia Belmoreana*, and *Codiaum Queen Victoria*, being large but not in good condition; Mr. W. VAUSE, 3rd.

The best specimen of single-flowered *Azalea indica* was a rosy-red variety, named *Holfordiana*. Apart from this plant, *Azaleas* were not particularly good, the season being now far advanced.

The best *Codiaeums* exhibited in a class for three specimens were shown by Messrs. R. SIMPSON & SON, and two of them deserve considerable commendation; 2nd, Mrs. GURNEY PEASE, whose best specimen was one of the variety *Aigburthensis*.

Messrs. R. SIMPSON & SON were also the best exhibitors in a class for one specimen *Codiaum*; and Mr. W. VAUSE was 2nd.

Six exotic Ferns were shown very well by Mrs. GURNEY PEASE, Woodside, Darlington (gr. Mr. J. McIntyre), and the specimens were very fine ones, including *Davallia filix-foemina*, *Gleichenia rupestris*, *Davallia Mooreana*, *Davallia bullata*, *Adiantum concinnum*, and *Microlepia hirta cristata*. Messrs. R. SIMPSON & SON were 2nd, including a beautiful *Gleichenia* of moderate size; 3rd, Rev. G. YEATES, Heworth Vicarage, York. The best specimen Fern was one of *Davallia filix-foemina* plumosa, from Mrs. GURNEY PEASE, and the best trio of Ferns was from the same exhibitor. The varieties were *Davallia Mooreana*, and an *Adiantum*. The Rev. G. YEATES was 2nd, who had a very beautiful plant of *Adiantum Williamsonii*.

Several collections of Hardy Ferns were also shown.

Lilium longiflorum Harrisonii, was shown in a class for six plants by several competitors. The winning plants were more than 5 feet high.

FLORIST'S FLOWERS IN POTS.

Calceolarias.—Of herbaceous *Calceolarias* there was a good show. The 1st prize for eight plants was won by Mr. J. W. HUTCHINSON, and they were of good strain, and well cultivated; 2nd, A. WILSON, Esq.; and 3rd, S. LATHAM, Esq., Elm Bank, York (gr. Mr. Jno. Haw).

The class for four plants was won by the same exhibitor as the preceding class; and the 2nd prize by T. F. WOOD, Esq., Nunthorpe (gr. Mr. John Young).

Tuberous-rooted Begonias were shown in a class for eight plants, and there was a very fine lot from PETER KIRBY, Esq., York (gr. Mr. Jos. Haigh). A single-flowered variety, pink, was of excellent quality, and all of them were superior in point of strain. The 2nd prize was won by Miss WHARTON, Burton Grange, York (gr. Mr. Geo. Clarke); and the 3rd by Mr. J. W. CLARKE, York.

Pelargoniums were splendid, such as are now never seen in London, unless from Mr. TURNER. The best group of twelve plants of show varieties was from Mrs. TETLEY, Fox Hill, Westwood, Leeds (gr. Mr. Isaac Eastwood), who was the only exhibitor in this class, and in that for six plants. Mrs. TETLEY was 1st for three show varieties also; and for eight fancy varieties.

Zonal Pelargoniums were quite a blaze of colour from Mrs. TETLEY. The plants were 5 feet across, abundantly flowered, and in every sense commendable. She was 1st prize winner in the class for twelve plants of "Zonal, Nosegay, or hybrid Nosegay" varieties; and Mr. H. PYBUS, Monkton Moor, Leeds, was 2nd.

Mrs. TETLEY was the best exhibitor, too, in the class for six plants; and Mr. PYBUS was again 2nd.

Then in a class for six hybrid Nosegay varieties that included such sorts as *V. suavis*, *Niphetos*, *Lord Harris*, &c., Mrs. TETLEY had the premier prize; and also in a class for nine double-flowered varieties in which she also showed very finely. Messrs. SIMPSON & SON, Selby, were 2nd in this class, and in that for three plants.

Ivy-leaved varieties too were shown grandly, especially by Mrs. TETLEY and Mr. PYBUS.

Fuchsias were shown as pyramids, fine, and 6 feet high. The 1st prize for six plants was won by Miss WHARTON; and the 2nd prize by Mrs. TETLEY, who had 1st for three plants.

Coleus were not of special character, but there were several collections of six plants each, some of them being 4 feet across.

ROSES.

Had the season been a little earlier, we should have seen a magnificent display of Roses at York, for which there were eight classes, and liberal prizes offered. One class called for seventy-two blooms. Under the circumstances there were more shown than could have been expected.

The 1st prize for seventy-two blooms was won by Messrs. HARKNESS & SONS, Bedale and Hitchin. There were fine blooms of *Maréchal Niel*, *J. D. Pawle*, *Muriel Graham*, *Princess of Wales*, *Niphetos*, *Bridesmaid*, *The Bride*, *Catheline* *Mermet*, *Duke of Wellington*, &c. which were much

better than could have been expected. The 2nd prize was won by Messrs. J. & A. MAY, Bedale.

The firm just mentioned won 1st prize for forty-eight distinct varieties, and for thirty-six distinct varieties, staging good blooms in each case.

Messrs. HARKNESS & SON had the best collection of twenty-four distinct varieties, and some of these were of commendable merit, and had presumably been grown under cover; 2nd, Messrs. J. BURNELL & CO., Cambridge, who had a very large proportion of deep-coloured hybrid perpetuals.

The 1st prize for eighteen distinct varieties was won by Mr. J. W. HUTCHINSON.

Twelve white or yellow Roses were best from Messrs. HARKNESS & SON, who had very pretty blooms of *Madame Hoste*, *K. A. Victoria*, *White Maman Cochet*, *Scuvenir de S. A. Prince*, *Maréchal Niel*, and *Niphetos*.

The 1st prize for eighteen distinct Roses from amateurs was from Mr. HUTCHINSON.

OTHER CUT FLOWERS.

There were cut flowers shown of a large number of species, but we can only refer to some of the more important. Some of the best bunches of stove and greenhouse flowers were from Sir JOSEPH PEASE's garden.

There were excellent displays of hardy flowers on spaces not exceeding 18 feet by 5 feet. Messrs. R. SMITH & CO., Worcester, took the leading prize with freshest bunches of choice flowers, and relieved by seven spikes of *Eremurus robustus*, and *E. himalayicus*. Irises and large single-flowered *Paeonies*, were exceedingly pretty in this group, *Incarvillea Delavayi*, *Onosma taurica*, *Hemerocallis rutilans*, *Lilium longiflorum*, *Heuchera sanguinea*, pretty varieties of *Aquilegia*, *Lilium testaceum*, &c. The 2nd prize was awarded to a group of but little less excellence, from Messrs. HARKNESS & SON, Hitchin and Bedale. Some of the Irises (especially the variety *Queen of England*, a pale-coloured flower, were beautiful. The bunches of miscellaneous flowers were all of them representative of popular species; 3rd, Mr. J. H. HUTCHINSON.

Forty-eight bunches of fancy Pansies were shown capably by Mr. JOHN SMELLIE, Busby, N.B.; the 2nd prize going to Messrs. M. CAMPBELL & SON, High Blantyre, N.B.

Twelve bunches of hardy flowers brought a 1st prize for Mrs. MELLISH, Workop (gr. Mr. G. Mallinder). This was the place where the now famous Sunflower first appeared. Sir JOSEPH PEASE was 2nd.

FLORAL DESIGNS.

By far the most important class for florists' designs, was one for the best exhibit and greatest variety in floral designs, for which two prizes, together making £17, were offered. Mr. JAS. SUMMERS, florist, Sunderland, won the 1st prize of £10, with neatly-executed designs of a very formal and imitative style; Mr. CHAS. SIMPSON, florist, York and Scarborough, was 2nd; and Mr. G. COTTAM, florist, Cottingham, also exhibited well in this class.

The 1st prize for a single bouquet was won by Messrs. PERKINS & SONS, Coventry, who had a lovely shower-bouquet of Orchids arranged with exemplary taste; 2nd, Mr. GEO. WEBSTER, Sunderland.

Messrs. PERKINS were to the front again for two hand-bouquets, in one the predominant colour being scarlet, in the other mauve—the particular mauve obtained in certain *Cattleyas*; 2nd, Mr. JAS. SUMMERS, Sunderland. The best two ball-bouquets, and the best bridal-bouquets, were also from Messrs. PERKINS; Mr. JAS. SUMMERS following in both classes.

A hand-basket of cut-flowers was shown to the same effect, so far as the two exhibitors named above were concerned, in two classes, from one of which Orchids were excluded. The best stand or sprig of cut flowers, however, came from Mr. GEO. WEBSTER, Sunderland.

FRUIT AND VEGETABLES.

Early in June a practical gardener does not expect to see exhibited such a quantity of choice fruit as is yearly got together at Shrewsbury. It was well represented however at York, and generally the quality was good.

The most important class was one for a decorated table of ripe fruit, the decorations to consist wholly of cut flowers, foliage, and plants in pots, silver plate and the like excluded. The space allowed was 10 feet by 4 feet 6 inches. Mr. J. McINDOE once again proved his capacity to exhibit fruit successfully by winning the 1st prize for Sir JOSEPH PEASE, Bt. He had two bunches of Black Hamburg, and two bunches of Foeters' Seedling Grapes in baskets, *Charlotte Rothschild* Pine, two Melons, Peaches *Grosse Mignonne*, *Lord Napier*, and *Early Alfred*; *Plum: Transparent Gage*, and *Purple Imperial*; *Cherries Downy*, *Bigarreau Napoleon*; *Fig Brown Turkey*. The fruit was of excellent quality, and the table was decorated with consummate effect. Two elegant glasses furnished with *Madevallias* were the leading feature in the decorations, with suitable tracery and smaller glasses containing Orchid flowers. Total number of points 127 out of a possible 150. The 2nd prize was won by Lord BARNARD (gr. Mr. James Tullett). The Black Grapes in this case were very good, but the white ones poor. Figs were capital, so were Nectarines. The decorations, in which *Odontoglossum* blooms were predominant, were very charming: total number of points, 102; 3rd, Mr. J. SUMMERS, florist, Sunderland, who had ninety-five points; 4th, the Earl of HARRINGTON, Elvaston Castle, Derbyshire (gr. Mr. J. H. Goodacre), who obtained eighty-eight points. There was one other exhibit.

For a collection of fruits of six kinds, the successful com-

petitor was Sir J. W. PEASE, Bart. He had three bunches each of Black Hamburg, and *Chasselas Napoleon* Grapes; *Grosse Mignonne* Peach, *Lord Napier Nectarine*, *Hutton Hall Greenflesh Melon*, and *Brown Turkey Fig*. Almost equal to the fine exhibit just noticed was one from Lord ST. OSWALD, Kestell Priory, Wakefield (gr. Mr. John Easter), who was 2nd; Lord BARNARD being 3rd.

The 1st prize for a collection of four kinds was also won by Sir JOSEPH PEASE: A. W. WILSON, Esq., being 2nd.

Grapes, Peaches, Nectarines, &c.—The best three bunches of black Grapes were Black Hamburg, from Lady HAWKE, Wighill Park, Tadcaster (gr. Mr. Wm. Oates); and the 2nd prize exhibit was the same variety from Lady BEAUMONT (gr. Mr. W. Nicholson). There were several other exhibits in this class. White Grapes were fewer; the 1st prize was gained by Lady BEAUMONT, who had *Buckland's Sweetwater*; and Foster's Seedling, from Sir JOSEPH PEASE, was 2nd.

The best Nectarines *Lord Napier*, were shown by Sir JOSEPH PEASE; the Earl of HARRINGTON being 2nd.

There were ten dishes of Peaches staged, and the best were *Grosse Mignonne*, from Colonel HARRISON, Broadway; the Earl of FEVERSHAM, Duncombe Park, Hemslay (gr. Mr. Williams), being 2nd, with *Hale's Early*; and the Right Hon. F. J. SAVILLE FOLJAMBE, 3rd.

J. COBBETT, Esq., had the best Pine-apple.

The best exhibit of twelve Tomatoes was from Sir J. W. PEASE, who had even, heavy fruits of *Button's Perfection*. There were four other exhibitors.

There were only three dishes of Strawberries shown, and two of Cherries. Of fine dishes of Figs, the best was from the Earl of HARRINGTON, and were *Brown Turkey*. There were fourteen Melons staged.

Not many vegetables were shown. The 1st prizes offered by Messrs. WEBB & SONS for collections were won by Sir JOSEPH PEASE.

NURSERYMEN'S AND MISCELLANEOUS EXHIBITS.

GEORGE YELD, Esq., Clifton Cottage, York, showed cut flowers of cross-bred Iris and *Hemerocallis*, raised at York. H. Apricot from H. flava x H. Middendorfi, raised some years ago, is very rich in colour, and of very regular form. The newest variety is *Patience*, from H. flava and H. Sieboldi, and the seedling largely combines the colour of H. Sieboldi, with the habit of H. flava. Other seedlings of *Hemerocallis* were pretty, as were most of the Irises, *Centaurea*, *Montana*, and *sulphurea*, from seed collected in the Eastern Caucasus, had large flowers of very pale sulphur colour. Mr. Yeld, it may be remembered exhibited last year at the Hybridisation Conference at Chiswick.

Messrs. CHARLESWORTH & CO., Heaton Bradford, Yorkshire, in a very choice group of Orchids, had a capital plant of *Laelia cinnabarina*, and a good form of *Cattleya Reineckiana*. The best of the *Cattleyas*, however, were C. *Mossie* *Wagneri*, pure white, with orange-yellow markings on side of lip, but not new; and *Laelia Cattleya* (L. *purpurata* x *Cattleya Mossie grande*), with tinted petals and sepals, and richly coloured lip (Gold Medal).

Messrs. JAS. VEITCH & SONS, LTD., Chelsea, London, had a group of particularly choice Orchids, in which there were superb varieties of *Cattleya Mossie* and *Mendell*. *Laelio-Cattleyas* were also very fine; L.-C. *Canhamiana*, L.-C. *Hippolyte splendens*, L.-C. *Daphne superba*, L.-C. *Aphrodite alba*, &c. The most distinct of the *Laelio-Cattleyas*, however, was the rich orange-coloured L.-C. G. S. Ball. The beautiful *Laelia majalis* was represented well, and there were several choice *Cypripediums*, *Laelia Digbyana*, *Epidendrum vitellinum*, &c. (Gold Medal).

Messrs. HUGH LOW & CO., Clapton and Bush Hill Park Nurseries, Enfield, showed a group of Orchids, including choice varieties of *Cattleyas Mossie* and *Mendell*. A particularly pretty C. *Mendell*, with nearly white flowers, was named *Marguerite*, and a richly-coloured, very dark C. *Mossie*, named *Excelsa*. The seldom seen, but very pretty, *Laelia majalis*, with two blooms; *Brassavola Digbyana*, &c., were also noticed.

Messrs. W. CUTBUSH & SONS, Highgate Nurseries, London, showed an extensive group of miscellaneous plants, with Carnations as a conspicuous feature. The arrangement was much the same as the firm's group at the recent Temple Show. A group of *Malmaison* type Carnations was splendid; *Lord Welby*, crimson; *Thora*, white; *Baldwin*, pink; Mrs. Tre-lawny, salmon-red; The Shah, deep rose, with whitish margins; James Seymour, pink; and Mrs. Martin Smith, pale rose colour, were the magnificent varieties represented. *Oecilia* has large, *Malmaison* like flowers of lemon-yellow colour, but the grass is that of a border variety. Of true border varieties, *Henry James*, salmon-red; S. J. Brooks, yellow ground, edged rose; *Minerva*, pure white; *Herbert J. Gutbush*, the new crimson variety, figured in our report of the Temple Show; the old *Germania*, and *Duke of York*, deep crimson, were all finely shown. There were also *Ericas* in variety, *Lilium longiflorum Harrisonii*, *Caladiums*, *Cordylines*, *Codiaum Mrs. McLeod*, and other miscellaneous plants, made a grand exhibit. Messrs. CUTBUSH also brought from London a score of clipped Yew-trees, Box, &c. (Gold Medal).

Messrs. R. SMITH & CO., Worcester, had an extensive group of plants upon the grass, and it represented a very great variety of stove, greenhouse, and hardy plants, inclusive of *Codiaeums* and *Conifers*. There were excellent *Anthuriums*, *Clematis*, *Liliums*, &c.

Mr. F. C. EDWARDS, Leeds, had a group of miscellaneous plants, inclusive of Carnations in flower. Also flowers of a *Viola Baden-Powell*, white with purple markings, a sport from *Duchess of Edinburgh*.

Messrs. LAXTON BROS., Bedford, exhibited a fine lot of

Strawberries of the varieties Montmore, Fillbasket, and Climax (Gold Medal).

Messrs. E. WEBB & SON, Wordsley, Stourbridge, showed tuberous-rooted Begonias, Gloxinias, and growing plants of their new early Pea Pioneer, the bine of which was thickly set with filled pods.

Messrs. KILWAY & SON, Langport Nurseries, Somerset, had a very large collection of cut flowers, showing their specialties of Pyrethrum roseum, tree and herbaceous Peonies, Gaillardias, and other hardy flowers, besides blooms of many varieties of Hippeastrums.

Messrs. DICKSONS' cut flowers from Ohester were more representative of the general hardy flower-garden, and the kinds shown were represented in capital quality. Irises were conspicuous, and there was much variety in these. Pyrethrums were good also. Papaver nudicaule miniaturum, several varieties of Centaurea montana, including the pretty mauve-coloured one, named rubra; Muscari plumosum, &c.

Messrs. J. PEEB & SONS, Roundell Park Nurseries, Norwood, London, showed a group of Gloxinias and cut flowers of single and double-flowered Begonias.

Mr. J. WOOD, of Woodville, Kirkstall, Leeds, showed a number of Alpine-plants in a temporary rockery upon the stage.

Messrs. W. CLIBBON & SON, Altrincham and Manchester, exhibited a collection of stove and greenhouse plants, in which some well coloured Codiums showed to advantage, and a group of plants of a decorative variety of Pelargonium was the most striking feature.

Mr. R. SYDENHAM, Birmingham, had a charming exhibit of Sweet Peas; also cut Carnations.

MISCELLANEOUS SOCIETIES.

Bristol and District Gardeners' Mutual Improvement.—The opening meeting of the Summer Session was held at St. John's Parish-room on Thursday, May 31, Mr. G. Brook presiding over a large attendance. Mr. W. J. Hockey of Yatton was the lecturer, his subject being, "The Kitchen Garden, and what is Expected of Him."—In a clear and concise manner he described the most suitable position for a vegetable-garden, the soil best fitted generally for vegetables, with the best methods of treating it; advocating good drainage, trenching, effectual manuring, and an abundant supply of water laid on. With regard to manuring, he insisted strongly on the advantage of some knowledge of chemistry, to gardeners especially, in the use of chemical manures. He also advised all to keep a complete diary of all their operations, for reference, as well as comparison of one season's results with another. He claimed for kitchen gardening that it was the highest point in the gardener's operations, and urged the constant endeavour to secure the best possible results. *W. E. G.*

THE WEATHER.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period June 3 to June 9, 1900. Height above sea-level 24 feet.

1900.		DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				RAINFALL.	TEMPERATURE OF THE SOIL AT 9 A.M.			LOWEST TEMPERATURE OF GRADE.
JUNE TO JUNE 9.	At 9 A.M.		Day.	Night.	At 1-foot deep.	At 2-foot deep.		At 4-foot deep.			
	Dry Bulb.								Wet Bulb.	Highest.		Lowest.
SUN.	3	N.N.E.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.	
			62.3	57.5	68.7	50.2	...	56.1	54.1	52.1	50.5
MON.	4	N.N.E.	62.1	55.5	67.5	2.47.2	...	57.2	54.7	52.1	40.2
TUE.	5	N.N.E.	56.2	51.5	62.0	45.7	...	58.7	55.5	52.2	40.1
WED.	6	N.N.W.	55.6	51.6	67.3	54.7	0.04	59.5	56.1	52.8	43.5
THU.	7	W.S.W.	59.7	55.1	66.1	52.0	0.14	61.2	56.8	52.6	49.5
FRI.	8	W.S.W.	55.8	52.3	66.1	50.5	0.05	59.9	57.2	52.9	46.1
SAT.	9	S.S.W.	59.7	54.5	67.4	52.9	...	59.7	57.2	53.2	50.1
MEANS...	58.8	54.0	66.4	49.6	0.23	58.9	55.9	52.5	45.7

Remarks.—The weather has been bright and warm, the wind having changed from the north to a southerly direction during the latter part of the week. Showers fell on three days.

GENERAL OBSERVATIONS.

The following summary record of the weather throughout the British Islands, for the week ending June 9, is furnished from the Meteorological Office:—

"The weather during this period varied considerably in different parts of the kingdom. Over Great Britain the earlier half of the week was generally fine and dry, with however, a good deal of fog on the east and north-east coasts. Later on, very variable conditions prevailed, thunderstorms alternating with fine, bright intervals. Over Ireland the

week commenced with thunderstorms in the south, and fine weather in the north; rain continued to fall frequently in the south-west and west throughout the week, and gradually extended to the northern and eastern parts of the kingdom.

"The temperature was 3° or 4° below the mean in 'Scotland, E.,' and 'England, N.E.,' and just equal to it in 'Scotland, N.' Elsewhere it was above the normal, the excess ranging from 1° in 'England, E.,' and the 'Channel Islands,' to 4° in 'Ireland, N.' The highest of the maxima were recorded mostly either on the 3rd or 4th, but towards the end of the week in the extreme E. and N.E. They ranged from 81° in 'England, S.,' and 78° in 'England, S.W.,' to 68° in 'England, N.E.,' and to 67° in the 'Channel Islands.' The lowest of the minima, which were registered during the early or middle part of the week, ranged from 35° in 'Scotland, W.,' and 36° in 'Scotland, E.,' and 'England, N.E.,' to 45° in 'England, E.,' and to 51° in the 'Channel Islands.'

"The rainfall exceeded the mean in 'England, S.W.,' and 'Ireland, S.,' and was just equal to it in 'England, E.,' in all other districts it was less than the normal.

"The bright sunshine varied greatly; it was generally deficient in the north and east, and in excess elsewhere. The percentage of the possible duration ranged from 55 in 'England, S.,' and 58 in the 'Channel Islands,' to 24 in 'England, N.E.,' and 23 in 'Scotland, E.'"

DAMAGE FROM HAIL.—On Monday afternoon this neighbourhood (Cole Orton, Ashby-de-la-Zouch) was visited by a severe hailstorm, and although the storm of hail did not last more than a quarter of an hour, it broke nearly all the glass in the houses here. Over 30,000 squares being smashed, and all the crops underneath of Grapes, Peaches, Tomatoes, and Cucumbers, were destroyed by the hail and broken glass. Some of the hailstones were 2 inches in diameter, and the ground was white with them. The earth was strewn with tree-leaves, small branches, and fruit, and the vegetables are riddled and smashed up. The damage is estimated at more than £500. *G. Maynard.*

ANSWERS TO CORRESPONDENTS.

BEETLE ON GODETAS: *A Young Gardener.* The insect is *Haltica ericeti*. For treatment, see reply to "W. S."

CENTAUREAS WITH WHITE FOLIAGE: *W. P. C.* *ragusina*, a plant with yellow flowers, appearing in June and July, was once very popular; but it has of late years given way to *C. Cineraria*, syn. *C. candidissima*, a taller plant than the preceding, but with very white, downy, compound leaves; lowest bipinnatifid; upper ones pinnate-laciniate. The flowers are purple, and appear in July and August.

"**CORVICUS SENEX**" begs to intimate that he will be found in the Georgics, and does not at present desire to have any other address.

DENDROBIUM DEVONIANUM, UNTIMELY GROWTH IN. *H. S. S.* It is not always possible with freshly imported plants to have the growth made in the normal manner or at the right season. The pseudo-bulbs should be encouraged to make a fair amount of growth in the East Indian-house, by affording abundance of water, at this season, and then be rested in a rather lower temperature, and much less moisture afforded—only as much as will prevent the stems (pseudo-bulbs) from shrivelling. The plant usually makes its growth after the flowers fade—that is in June or early in July. Do not remove the pseudo-bulbs that the plant has already made. It will probably flower next year at its proper season.

GRAPES: Perplexed. Your Grapes are affected by spot, due to a fungus, *Glaesporium*. Spray them early in the season with sulphide of potassium, half-ounce to a gallon of water. Destroy by fire all affected berries.

HOLLY-LEAVES: Cheshire. The leaves are affected with the Holly-fly (*Phytomyza ilicis*). Sweep up all affected leaves as far as possible, and burn them.

INSECT ON ONIONS: *J. B.* *Bibio hortulanus*, a rare dipterous fly. The yellow examples are females, the black ones are the males.

INSECTS ON STOCKS: *W. S.* From the description you give of the insect, and the condition of the foliage submitted, your Stocks are probably attacked by the Turnip Flea-Beetle (*Haltica nemorum*). Encourage root action by liberal waterings. Numbers of the beetles could be

trapped by holding a piece of freshly-tarred canvas between the plants, and gently tapping the flower-heads with the hand on the side opposite the tray. The beetles will leap from the plants in the direction of the tray, and any alighting upon it would be caught in the tar, which must be kept sticky. Dressings of lime, gypsum, and lime have been used as a remedy with partial results.

LABURNUM SPORT: Several Correspondents. The well known *Cytisus Adami*, originating from budding *Cytisus purpureus* on to *C. Laburnum*.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—*C. W. D.* *Cytisus biflorus*.—*W. H. M.* *Datura cornigera*.—*Y.* *Asplenium Adiantum nigrum*.—*R. Macfee.* We cannot undertake to name varieties of Pelargoniums, or other florists' flowers.—*Pengrula.* We cannot name varieties of Rhododendrons. Send them to some nurseryman who grows them largely.—*Tite, Alresford.* 1, Probably an *Acalypha*; 2, *Anthericum lineare variegatum*; 3, *Pancratium illyricum*; 4, *Oxalis Acetosella*; 5, *Thalictrum aquilegifolium atropurpureum*; 6, *Saxifraga granulata flore pleno*; 7, *Ribes luteum*; 8, *Euconymus europaeus*; 9, *Viburnum Lantana*; 10, *Poa trivialis variegata*.—*M. T., Arundel.* 1, *Tillandsia splendens*; 2, *Dendrobium moschatum*; 3, *Trachelospermum jasminoides*; 4, *Bifrenaria Harrisonia*.—*J. T., Dartford.* 1, *Angulosa Ruckeri*; 2, *Lycaste Deppii*; 3, *Vanda tricolor*; 4, *Spartium junceum*; 5, *Weigela hortensis*.—*G. S. W.* Apparently *Crataegus coccinea*, but we cannot be sure from a withered scrap.—*A. McD.* 1, *Spiraea opulifolia*; 2, *Lonicera alpigena*; 3, shrivelled beyond recognition.—*Min.* Specimen much shrivelled, apparently *Ornithogalum arabicum*.—*T. H. O. P.* 1, *Spiraea bella*; 2, *Syringa Emodi*; 3, *Syringa persica*; 4, *Berberis empetrifolia*; 5, *Berberis Darwini*.—*E. F. H.* 1, *Fraxinus Ornus*; 2, *Pyrus terminalis*; 3, *Tilia platyphyllos var. asplenifolia*; 4, *Sisyrinchium Bermudianum*.—*A Fifty Years' Subscriber.* How glad we are to be of service to so old a friend! *Rosa alba*, South Europe; biennial.—*Ignoramus.* 1, *Digitalis lutea*; 2, *Anchusa italica*; 3, *Asplenium marinum*; 4, *Pteris argyrea*; 5, *Nephrodium spinulosum*; 6, *Nephrodium filix-mas*, Male Fern.

PEACH STONE SPLITTING: *S. F. & Co.* This arises usually from heavy applications of water to a border previously in a very dry condition for a considerable length of time. It may also arise from imperfect fertilisation of the flowers.

SIEVE AND BUSHEL: *E. B.* An imperial bushel holds 32 quarts; the sieve 28 quarts. The weight would differ with the things put into them. Sieve and bushel are measures of capacity, not of weight.

STRAWBERRY RUNNERS: *Doncaster.* We should not recommend you to take runners to make plants for next year's forcing from plants which have been forced this year, as such would be very likely to lack vigour. If you must take such runners, do not let the mother-plant produce flowers, moreover give them every encouragement now they are planted out, and take only one or two of the stronger runners from each plant.

TRANSPLANTING YEW: *J. M.* If the plants are removed with a large ball of earth, which is kept compact by means of barrel-staves and ropes, or in the case of small trees by mats and canvas, Yews may be transplanted at almost any season, but with the best chance of their doing well in the period, April to June, and September and October. The worst time is the winter season, and especially frosty weather, when much browning of the leafage is caused by bruising. Transplanted trees need to be afforded fresh soil and some rotten manure, and to be well attended to in the matter of affording water to the roots, and in the late spring and summer of daily syringings of the heads.

COMMUNICATIONS RECEIVED.—*W. C.*, *Rothesay*—*C. H.*—*W. M. W.*—*A. Menissier*.—*Attwood & Binns*—*R. H. P.*—*James Norwood*—*O. T.*—*G. J. Ingram*—*G. Massee*—*B. T. B.*—*W. M.*—*W. B. H.*—*G. N.*—*D. R. W.*—*J. O'B.*—*A. D.*—*Messrs. H. Low & Co.*—*Messrs. Sander & Co.*—*A. B.*—*C. W. D.*

SPECIMENS RECEIVED WITH THANKS.—*F. Sander & Co.*

(For Markets, see p. viii.)



THE Gardeners' Chronicle

No. 704.—SATURDAY, JUNE 23, 1900.

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ALDERNEY.

UPWARDS of sixty years ago, the late Professor C. C. Babington compiled and published a list of all the plants then known to occur in the Channel Islands, under the title of *Primitia Floræ Sarnicae*. Since then much botanising has been done in the islands; but no fuller general account of their flora has appeared. However, this is likely to be accomplished soon by Mr. E. D. Marquand, a gentleman well known in London botanical circles, who has already published a number of contributions to the subject. His last is an enumeration of the plants he collected last year in the Island of Alderney. It will be remembered that this is the outermost of the larger islands of the group, and for that reason its flora is extremely interesting to the student of the geographical distribution of plants. Mr. Marquand's list comprises 414 species of flowering-plants and vascular cryptogams, the latter consisting of ten Ferns and two Horse-tails. This number, it is considered, does not exhaust the flora, because Mr. Mar-

quand's investigations extended only from May to August, during an exceptionally dry season. Yet he added 140 species not recorded by Babington. He mentions, as specially interesting, *Helianthemum guttatum*, *Centaurea aspera*, *Bromus maximus*, *Arthrolobium ebracteatum*, *Ononis reclinata*, *Bupleurum aristatum*, and *Romulea Columnæ*—all sufficiently abundant to satisfy the needs of collectors. Mr. Marquand's knowledge of the flora of the islands generally is so complete, that he is able, without any effort, to make comparisons and record facts of interest. He says: "It is curious to observe how the islands in the Channel group differ from each other in regard to their indigenous vegetation. How a plant, for instance, is abundant in one island, rare in another, and altogether absent from a third; while certain plants are entirely confined to one island only, without any apparent cause. Then, again, there are some remarkable points of dissimilarity between the flora of the islands and that of the neighbouring French mainland. One would imagine that with less than ten miles of sea intervening, Alderney would resemble, botanically, certain parts of Normandy, but it does not. This is one of the remarkable features of the insular flora, and I shall have something to say about it in my forthcoming book on the *Flora of Guernsey and the Lesser Channel Islands*."

Mr. Marquand gives a list of twenty, mostly conspicuous plants, found in Alderney, but not known to occur in Guernsey. Only three Orchids were collected, namely, *Orchis latifolia*, *O. pyramidalis*—one of the plants not found in Guernsey, and *Spiranthes autumnalis*. Mr. Marquand also visited Burhou, an uninhabited island lying midway between Alderney and the Casquet Rocks, where he collected only seventeen species of plants, the mass of the vegetation consisting of *Pteris aquilina*, *Scilla nutans*, *Lepigonum rupestre*, and *Silene maritima*. *W. Botting Hemsley*.

ENGLISH AND SCOTCH WOODS.

MEASURED by its timber-trade, England is by far the best wooded part of the three kingdoms, even allowing for its greater size. What the extent of the home timber trade may be nobody knows, for the agricultural returns give no record, but it must be great, and under a proper system of forestry might, no doubt, be enormously increased—I refer to England. The Scotch home timber trade cannot be great, because the woods there are not very extensive, and a great portion of them are young or immature. Of the nearly three million acres of woods in Great Britain and Ireland nearly one-half is in England; between a third and a fourth in Scotland, about one-eighth in Ireland, and half of that in Wales. Yorkshire alone contains nearly as much standing timber as Wales, and probably the value of the Yorkshire woods would exceed that of all the woods in Scotland, because Yorkshire contains a far larger proportion of Oak and other hard woods, and is more accessible to good markets. In all the three countries there are, as is well known, immense tracts of poor or waste land that might be profitably planted, and I will venture to say that very few of our existing woods contain more than half a crop of timber, and that inferior. Still, at the worst of times, home-grown timber can always be sold at a price that would pay if the crop on the ground was as heavy as it might be, and of the right sort. The deputy-surveyor of the New Forest has

stated that there are 40,000 acres of land lying idle and worthless there alone, through mismanagement and want of foresight, and what applies to the New Forest applies to many woods on private estates.

In England, wherever one goes, hardwoods prevail in plantations, much of it being Oak, but now, as a rule, of small size and under middle age, while not so much is being planted as formerly. Aged Oak alone fetches good prices, trees under sixty or eighty years being usually too slender, and containing too much sapwood—little better than poles, in fact, which rarely fetch more than 1s. per foot, and often less—a price exceeded by several species that attain bulk sooner than the Oak. Tree-planting in England has, apparently, not been ruled by considerations of demand, but simply by custom. Until now, the Oak has been the favourite, but the hurry of the present age and the desire for quicker realisation has checked its planting. In Worcestershire and adjoining counties it is Elm, Elm everywhere, generally the Scotch variety, until it has become so plentiful that it is sold for 6d. per foot, or less. It is the hedgerow tree of these parts, and grows very tall and straight. The want of evergreen species in English woods is very noticeable. Everywhere one notices that the woods are thin, too thin whenever they have reached middle age or thereabout. Under-planting in a systematic way is neglected. Planting to some extent, after timber has been removed, is practised, but in a haphazard way without any clear purpose, and the species planted are often of the wrong kinds. Owners of woods would find it much the better plan, when falls of timber are taken out of a wood, and the wood is going to be thin, to take all that is fit for the consumer, and plant up immediately. In thirty years, or a little more, with very little care, a new wood will have grown up, and nearly the whole of what was left of the older trees could be taken away and sold. For under-planting there is none equal to the Beech and Spruce, as they will thrive under the shade of other trees. As a rule, none of the Pines of the Scot's Fir or Corsican class will do much good in old woods where there is much shade, as they are all light demanders, and cannot endure shade for long. Nothing destroys the robust Austrian Fir, for example, so quickly as the shade of deciduous trees, as I have often had occasion to notice.

The fault of planting in England and Scotland is that in the former Fir plantations are scarce, comparatively, and in the latter too common; and it is a curious fact that for the most extensive tracts of Scot's Fir, we have to go to the far north of Scotland, or to the southern counties of England. The finest lots of Fir timber I have known to be sold in England have been in Hampshire, Surrey, and Cornwall. The extensive Scot's Fir woods that used to exist in Cumberland, and of which Wordsworth wrote, are gone.

Whatever may be said against very large single estates, it is a fact, we believe, that if it had not been for our great landed proprietors our woods would have been far less extensive than they are, and the British Islands stands at the bottom of the list in Europe in that respect. By far the largest estates are in Scotland, and there also we find the greatest planters, woods from 10,000 to 30,000 acres or even more being found on some single estates; but much of the land planted is too good for timber, and much of the timber produced is of the least profitable kind. The greater acreage of the

Scottish forests are in the counties of Aberdeen, Perth, Inverness, Ross, and Elgin, and by far the largest portion of them consist of Scot's Fir. What becomes of it all? There must be quantities of Fir timber fit for those purposes for which so much Baltic Fir is shipped to this country; yet one rarely sees Scottish timber in the shape of pit-props and poles, &c., in the English timber-market, and almost the whole of the timber supplied to the Scottish coal-fields is also foreign. Small lots of Scot's Fir pit-props are occasionally seen, and are easily known by their rougher appearance from the foreign timber, which is quite free from bark, and clean.

There can be no doubt about the wisdom of planting plenty of Scot's Fir, provided it is grown in the right way, because the demand for Fir timber, and especially Scot's Fir, is about four times as great as the demand for all other sorts of timber put together, and any quality of it will find a market provided it is clean-grown, and will produce deals $5\frac{1}{2}$ inches wide and upwards. Go where you may into any wood-yard, where timber is stored for general purposes, and you will find that the stock consists almost exclusively of Fir timber; brick, mortar, and Pine timber, are the stock-in-trade of every builder—and of Pine timber we have apparently no stock of at home. As it is, builders now use an enormous quantity of Spruce deals for flooring and other purposes, although the specifications usually stipulate for Baltic or Scot's Fir. Doors and skirtings are also commonly of Spruce deal or Weymouth Pine, neither of which is equal to Scot's Fir, which is now getting scarce, comparatively, railway-sleepers appropriating the most of it.

Notwithstanding the demand for Fir timber, however, Scottish planters would do well to put in more Ash, Sycamore, Beech, and other hardwoods, and thereby increase the value of their estates. Most of the hardwoods thrive everywhere in Scotland, as many magnificent avenues prove; and the extent to which common Spruce has been planted has puzzled many. As grown, the latter is practically worthless, being often too far from the consumer, and low-priced anywhere. During storms it has gone down more than any other tree; and while timber-users have picked out the hardwoods, they have left the Spruce, and in most cases it has laid as it fell. Even on the score of covert for game, no excuse has existed for planting so much Spruce or Pine in mixed woods. It has been much overdone in Scotland, for no intelligible reason that ever I have heard. A very few Spruce-trees in a mixed wood afford sufficient covert for game, and if the trees are planted in groups here and there, all the advantages that the trees can afford to pheasants in the way of shelter are gained. The rest of the wood may consist of more useful species. We know of woods in Scotland, thousands of acres on single estates, in which the bulk of the timber is Spruce, and which, though large, cannot be sold or given away. As Spruce is mostly found, too, in mixed woods, and as the situation suits the Spruce admirably, it has usurped the space at the expense of the Larch and hardwoods planted with it, which it smothered. The common Spruce and Silver Fir are trees that should never be given an equal chance with others on their own ground, but should be planted some years after the wood is established; otherwise it should be confined to groups, and not be mixed indiscriminately with other species. It can hardly be injured by shade. *J. Simpson.*

THE SWISS VILLAGE IN PARIS.

THE two Genevese contractors who have succeeded in forming a marvellous representation of Switzerland in the midst of Paris, have earned the approbation of the public. The proximity of the Great Wheel is indeed deplorable, but is inevitable. On entering the Swiss village from the Avenue de Suffren, the first thing that strikes the eye in the background is a notched peak projecting against the sky, resembling the Dent de Morcles, seen from the plateau of Verossay. The notch which separates the two peaks deepens into an enormous fissure from which escapes the foaming cascade which gives life and freshness to the landscape. Green "alps" spread in every direction over the gentle slopes.

In another direction we enter the village square, where we find an old Lime-tree, such as is so characteristic of the country. There are Pines and Horse-Chestnuts by hundreds, and all these large trees have been transported with enormous balls of earth requisite for success. Here is a little church, intermediate in style between the austere Protestant temples and the elegant churches of the Catholic cantons. The bells have chimed as throughout Canton Valais. Close by is a little cemetery, and the presbytery garden with its walks bordered with Box encircling old-fashioned flowers. To the left is a little lake, a miniature lake of Lucerne, with abrupt rocks, the classic Tell's Chapel, and farther on the beautiful Treib Inn. The borders of the torrent are margined with Edelweiss, Silenes, Papaver alpinum, and other appropriate plants. The slopes are covered with Rhododendrons hirsutum and ferrugineum, Aster alpinus, Achillea tomentosa, Potentilla alpestris, Viola calcarata, and Aquilegia alpina. Such plants as these are flourishing as in their native haunts, and have been planted by the thousand by the Jardin Alpin d'Acclimatation of Geneva.

The mountains constitute the marvel of the Swiss village. They form around it a raised crown or rampart, constituted by a frame-work of timber. The main supports consist of a number of large Spruce-trunks 30 to 40 metres high, and which have been transported from the forests of Gimal in the Vaudois Jura. These are sunk in the ground to a depth of 10 metres, for they have to bear the weight of the structure. This gigantic framework measures 630 metres in length, and its height is sometimes as much as 40 metres.

The framework once constructed, it was necessary to cover it with planks strong enough to bear the weight of a deep layer of earth, in which are planted trees and shrubs, to give the whole an artistic appearance. All the sloping parts are provided with pockets or compartments to prevent the washing away of the earth from the roots of the plants.

Five thousand cubic metres of wood were used for the scaffolding and the pockets, and more than 300 workmen were at work for upwards of two years in their construction. The soil had to be covered over with pieces of turf in squares (20 cm.), placed side by side and pegged down to the soil. In some cases grass-seed from the high mountains near Bourg St. Pierre in the Valais was sown. The rocks in this mountain-picture cover a superficial area of 20,000 square metres, and are admirable imitations of Nature. A professor of geology lately complimented M. Allemand, the landscape artist, on his knowledge of geology, and on the fidelity with which he had reproduced the details of rock construction.

A mixture of tow and plaster of Paris is poured into moulds, fashioned on the spot by M. Allemand and myself in the Salève where we selected the rocks best suited to the purpose, and took casts of them. These blocks, measuring about 2 metres square, are tied together by iron rods; blocks of real rock are interspersed, so that it is difficult to distinguish the false from the real. Natural rocks bound the sides of the cascade and the borders of the lake; many of them are water-worn blocks from the Salève, near Geneva.

The cascade is another marvel of this exhi-

bition. The water has a fall of 35 metres by 5 metres; 80 litres pass per second, making a total of 3,500,000 gallons a day. In the evening, when illuminated by greenish electric light, a beautiful moonlight effect is produced.

An alpine garden, like that of the Linnaea at Bourg St. Pierre, has been established near the Hall of Agriculture and the Salle des Fêtes. This vast pyramid is planted with Pines and Spruces, and wherever the rocks protrude there are alpine gardens in miniature around them. Papaver alpinum here spreads its delicate petals, while Erinus, Dryas, Aster alpinus, Antirrhinum glutinosum, and Asarina, Gypsophila repens, Saxifraga longifolia and S. Cotyledon, Ramondia serbica, R. pyrenaica, &c., flower abundantly.

The windows and balconies of the chalets in the village are made gay by a profusion of Pinks and other alpine plants in pans or pots. Elsewhere, Clematis and climbing Roses cover the buildings, and many plants the favourites of our forefathers. But the pearl of the whole is the peaceful valley running southward and ending abruptly in rock masses. This little village is unique, delightfully artistic and picturesque, appealing alike to the artist, the naturalist, and the landscape gardener. *H. C., Geneva.*

LILIES AND THEIR CHARACTERISTICS.

(Concluded from p. 305.)

In my previous contribution to the *Gardeners' Chronicle*, I might have indicated those Lilies which have not succeeded in my garden; or which with every attention they could possibly receive from an earnest cultivator, have by reason of some want of affinity with the nature of the soil, only achieved a partial success. Prominent among these is the white Martagon Lily, with which I must admit I have been entirely unsuccessful, though I have given it a fair trial in different situations. The places where such grand Lilies as *Lilium giganteum* and *Lilium auratum*, and that noble native of Mount Caucasus, *Lilium monadelphum* Szovitzianum, have grown and flowered beyond my utmost anticipations, the white Martagon, through some perversity of nature I cannot wholly fathom, has utterly failed to succeed. I am sometimes disposed to think that the soil of my garden is too heavy, and too much akin to clay, for the adequate cultivation of this graceful Lily; especially as the late Dr. Wallace, of Colchester, was of opinion that it required a deep, friable soil. I have not found *Lilium Martagon* (which with the exception of its very remarkable dark purple colour may be regarded as possessing the same characteristics), so capricious or unreliable as *L. Martagon album*; it is possible that it may be of a more accommodating character—in any case it has frequently grown very vigorously, and flowered admirably here. I am not altogether surprised that I have not been able to achieve anything with that notable member of the great *L. Martagon* family, *L. pardalinum*, as its nature necessitates a species of soil akin to peat that I do not possess; in a situation suitable for the culture of Azaleas, it would be much more likely to succeed. But I have enduring consolations in *Lilium tigrinum* splendens, and *Lilium Burbanki* (one of whose parents is the "Panther Lily" of California, to which I have just referred); also in *Lilium Humboldtii*, which has flowered in the same position, not always however with equal effectiveness, for the last six years. Some seasons seem to suit the Martagons much better than others; for example, they were much finer last summer than they are likely to be this year. On the other hand, the various varieties of *Lilium auratum* and *Lilium speciosum* are rejoicing in their strength, and I look forward with assurance to their now rapidly approaching season of floral fruition.

Equally full of brightest promise are the beautiful white *Lilium excelsum*, and *L. chalcedonicum*. Marvellously brightening and inspiring is their beauty when they come into bloom; "even Solomon in all his glory was not arrayed like one of these." *David R. Williamson, Manse of Kirkmaiden, Wigtonshire, Scotland.*

ROSE TENNYSON.

Of the great number of new Roses that are being raised, the variety Tennyson seems likely to obtain a good position among those grown more or less for purposes of exhibition, or by Rose lovers who admire and will have a finely-formed and large flower, even

pot-plants then shown. They were full, globular, with a high filbert-like centre, and the petals were of considerable width. The colour is very pale pink. It is the same type undoubtedly as the somewhat abused Lady Mary Fitzwilliam, and by some will be looked upon with suspicion from this fact alone, but it may be pointed out that the plants shown by

BORDER PRIMROSES AND POLYANTHUSES.

THESE plants were unusually fine this year notwithstanding the drought of last summer, which at the time acted severely upon them. The seed should be sown as soon as it is ripe, that is towards



FIG. 128.—HYBRID TEA ROSE, "TENNYSON."

at the cost of fewer blooms. The hybrid Tea Tennyson was raised by the Messrs. W. Paul & Son, Waltham Cross Nurseries, Herts; and several plants in flower were exhibited by that firm at the meeting of the Royal Horticultural Society on June 5, when it gained an Award of Merit. Fig. 128, from a sketch by Mr. Worthington G. Smith, clearly shows the almost perfect character of the blooms upon the

Messrs. Paul were in first-rate condition, and proved that the variety, at any rate, is capable of fairly vigorous growth, and of flowering well. The leaves were deep green, shiny, and evenly toothed at the margins. We hope the plants may be as satisfactory, from the cultivator's point of view, as the blooms are good according to the standard of the florist.

the end of July, in drills outdoors, the plants becoming fit for transplanting into nurse-beds by the following spring. By practising a course of rigid selection, improved colours may be obtained in the course of a few years. There are thousands of these plants in shaded and sunny positions in the shrubbery borders at Rood Ashton, and the plants afford an effective display, besides furnishing abundance

of flowers for cutting. The giant yellow and white coloured forms are the best for this purpose, and their fragrance is no small charm to those who are fond of Primroses. The yellow and white forms remain more true to colour than the other varieties, even when visited by winged insects. I have a reserve border where there are planted the best varieties for seed-saving purposes, and by an annual weeding out of the poorer ones and the substitution of better ones, a good stock is obtained. The goodness of my stock is enhanced by the purchase of seed from specialists. Polyanthus-seed germinates more readily if sown as soon as ripe, whereas seeds bought off the dealers in the spring sometimes come up badly. For bedding-out, I rely mostly upon yellow and white-flowered varieties, these being more effective in masses than those with duller coloured flowers. *W. S.*

HONG-KONG.

MICHELIA FUSCATA.

ALTHOUGH this plant is a native of China, and very largely cultivated in Hong-Kong, in both English and Chinese gardens, on account of the very powerful and agreeable odour emitted when in flower, it had not up to a year ago been found wild in the island. In March, 1899, whilst on forestry work on the south side of the island, I was fortunate enough to come across a single plant of it, undoubtedly in a wild state. However, it was not the typical form, but apparently the variety known as *annonsolia*, and described in De Candolle's *Prodromus*, vol. i., p. 81, and erroneously spelt (I presume) *annonsolia*. It differs from the type, amongst other things, in the leaves not being ventricose, and the flowers being of a reddish or purple colour. As this variety is not cultivated in Hong-Kong, so far as I know, and I had never seen it before, it makes the plant all the more interesting. The specimen seen was a perfect bush about 5 feet high, but looked as if it had passed through the fire, or rather under the Chinaman's axe, as so many of our trees and shrubs have in the past.

IRIS SPECULATRIX.

Hence described this beautiful little species in the *Journal of Botany*, for 1875, page 196, and it is figured in the *Botanical Magazine* under tab. 6306. It was found in 1874, by a workman in the botanical department, on a hill overlooking the sea at the south-west end of the island. I can find no record of anyone having found it since, and I have searched for it in the same locality in vain. About three weeks ago, in the middle of April, I was plant-hunting six or seven miles from where it was previously found, and was lucky in coming across it in quantity. It was growing on hillsides, about 600 or 700 feet above sea-level, among long grass. As it was in flower, it was easily seen; but to look for it out of flower would be like looking for the proverbial needle in a bundle of hay, as its leaves would then be quite unrecognisable. The flowers are purple with a white blotch at the throat, and have yellow crests, and are borne in ones and twos on a stem about 1 foot high.

LAGERSTREEMIA FORDI.

This plant I found not far from the Iris, and as it had been noted only once previously in the island, by myself, in 1894, it was exceedingly interesting to discover it in an entirely different locality. The plant previously found was growing near the sea-shore in a very rocky situation, and here were several plants thriving in a similar manner, but at a much greater altitude. The flowers are by no means as showy as those of *Lagerstremia indica*, but it is a much better plant than many others which are grown.

RANDIA DENSIFLORA.

This plant has carefully concealed its identity in Hong-Kong for fifty years since Champion found it, so far as I have been able to find out; and it

must have been on account of its rarity, as it is a very showy shrub when in flower. Remarking on Champion's specimen, Bentham, in the *Flora Hong-Kongensis*, says, "A single specimen in very young bud, which on a careful comparison appears to me to belong to this species, although I do not feel certain of its identity." A few days ago, the beginning of May, having occasion to go along a hill on the south side of the island, I noticed a very striking shrub in flower, and on approaching it I saw that it was a plant I did not know. I obtained specimens, and examined them when I got home, when they turned out to be, apparently, this plant. There is no Hong-Kong specimen of the plant in the herbarium of the Botanic Gardens, but there is one, in fruit only, from Japan, and my specimens agree with it and with Bentham's description. There was only one plant to be seen, and it was about 9 or 10 feet high, and one mass of bloom. The leaves are 6 to 8 inches in length, lanceolate in shape, coriaceous and shining. The flowers are cream-coloured, more than half an inch across, sweetly scented, and produced in leaf-opposed cymes, the subtending leaf being entirely wanting, or reduced to a stipule-like organ. It is a common plant in the East, and is also found in Australia; but its re-discovery in Hong-Kong is very interesting. *W. J. Tutcher, Botanic Gardens, Hong-Kong.*

NATURAL VARIATION.

USING the term natural variation as distinct from variation that arises as a result of culture, there is no doubt whatever that in the abnormal forms of Ferns indigenous to Great Britain we have natural variation illustrated in a more striking way than in any other family of plants, so far, at any rate, as discoveries are concerned. A little consideration of the facts will show that this idea is not due to an exaggerated opinion of a specialist, but is based upon the fact that no other plants, in their wild state, have been so persistently examined for varieties by those who have acquired that peculiar keenness of vision which is indispensable to success. If we take stock of the introductions from abroad of new plants, we find them as a rule to consist of new species found by searching unfrequented or unexplored districts. These when introduced are perhaps used in the hybridisation of kindred species already known here, and it is in this way that many of our novelties are evolved and types improved by subsequent selection. In our own land, botanical research has practically exhausted the possibility of new specific finds, and so far the systematic and scientific botanist has abstained altogether from variety-hunting. The professional plant-cultivator, on the other hand, while devoting himself to the breeding, crossing, and selective improvement of types, confines his attention entirely to careful search among his seedlings for the variation which may appear among them. Finally, the roving amateur botanist is usually a general plant-lover, and with a casual glance at a clump of Ferns determines the species, and that done, goes on his way contented. Hence, it is only he or she (for many of the best sports have been found by ladies) who is devoted simply and solely to the Fern quest, and by a fortunate find in the first place, has acquired that faith which is essential as an encouragement to the prolonged search so often necessary, who acquires the certainty that natural variation is as wide, or wider, than that found under, and perhaps induced by, artificial culture. An examination of the more pronounced types found wild, show many of them to be far and away more removed from the specific type, at apparently a single jump, since intermediate forms are missing, than any which have originated spontaneously under culture. Take our *Athyriums*, *Victoria*, *Frizellæ*, *acrocladon*, and *Pulleri* as four original types, contrived and fashioned by nature under conditions apparently precisely similar to those under which the normal forms exist. So far there is not a tittle of evidence to show that

these varietal types can be regarded as responsive modifications to the influences of environment; the same hillside may yield the most diverse forms, and two of my own finds, growing side by side on the edge of a mill-leet (?) on Dartmoor, were of most opposed types—a dwarf, extremely depauperate *L. montana* and a foliose bifid, or subcruciate, *Blechnum Spicant*. Both of these species affect the same habitats, both the specimens were growing under identical conditions of soil, dampness, exposure, and aspect, and yet one was minus and the other plus the usual quota of foliaceousness; while a prolonged search for a great distance along the same even row of hundreds of the same species of Ferns failed to detect any other abnormality. It is indeed borne in upon the variety-hunter's mind that so far from the variations being sympathetic responses to environment influences, they are often antagonistic, and less fitted for survival by the assumption of the abnormal type. Heavily crested forms besides usually losing in height, are extremely apt to be broken down by stress of weather; dwarf forms are obviously handicapped heavily when associated with robust growing normals. Many finds, there is little doubt, owe their survival to the finder's care and protection, being, when found, in a small and languishing condition.

The cause of variation is, therefore, an absolute mystery so far, and few if any definite data exist upon even which a theory can be based. The study of evolution teaches us that we undoubtedly owe the immense specific and generic variation we behold around us, to the capacity of the life basis (protoplasm) to mould itself into organic forms which are precisely adapted to the innumerable varied environments, or complex conditions, which exist upon the earth's surface.

Starting from a simple type suited to primordial simple conditions, this life basis has varied, and through its variations it has become more and more complex in all directions, until it has succeeded in peopling earth, air, and sea with infinitely varied types. Whether, however, this is due to variation being induced particularly in directions better fitted to the changing environment, constituting a sympathetic response thereto, or whether this protoplasm is constantly varying in all directions, and survival is due to the special fitness thus occasionally arising, the unfit perishing, is still a matter of dispute. The Fern-hunters' experience, however, points, we think, entirely in the latter direction, and certainly if we consult the selective horticulturist he will endorse this view, seeing the enormous number of inferior types from which he has to select what he considers to be improved ones.

The grades of variation, which, by their accumulation, have led up to so much diversity, are usually small, and are doubtless often mere differences in constitutional vigour, which, though quite imperceptible to the eye, would prove of immense importance in the long run as determining survival under adverse climatal conditions; thus, a plant able to stand a few extra degrees of frost might, in a hard winter, prove the only survivor among hundreds; and if this hardness were accompanied by difference in external character, a few such winters might present the botanist with a species or sub-species. What we want, however, is more light in this special direction of variation; and we would suggest to all variety-hunters to take special note when a find turns up, of the nature of the soil or rock it is growing in, its position on a slope or on a flat, the aspect of its habitat, i.e., the quarter of the compass, E., W., N., or S.; whether it is a solitary plant, or associated with others of its type, or with normal forms; whether those normal forms are abundant round about or sparsely scattered; whether the plant was in good condition or otherwise, and so on. A list of finds giving these data, might very probably reveal some predominant and ruling factor of great value. The Fern-hunter also frequently comes across sub-varieties and "rogues," or inconstant forms, and notes regarding the above points in connection with these might also be useful. *Chas. T. Druery, F.L.S., V.M.H.*

A NEW LATE FRUITING STRAWBERRY.

In fig. 129 our readers have a good illustration of the fruit of a new Strawberry introduced by Messrs. Laxton Bros., Bedford, at a meeting of the Royal Horticultural Society on June 5. As described in our issue for the 9th inst., this novelty is the result of a cross between Latest-of-All and

Trafalgar will prove to be not only a dessert fruit of high quality, but equally useful to the cultivator for market; adding that Trafalgar will be found to be as good in most respects at the end of the season, as Royal Sovereign is at its commencement. For the credit of the firm of Laxton, and the good of Strawberry consumers alike, we trust this will be confirmed by the experience of our readers in the next century.

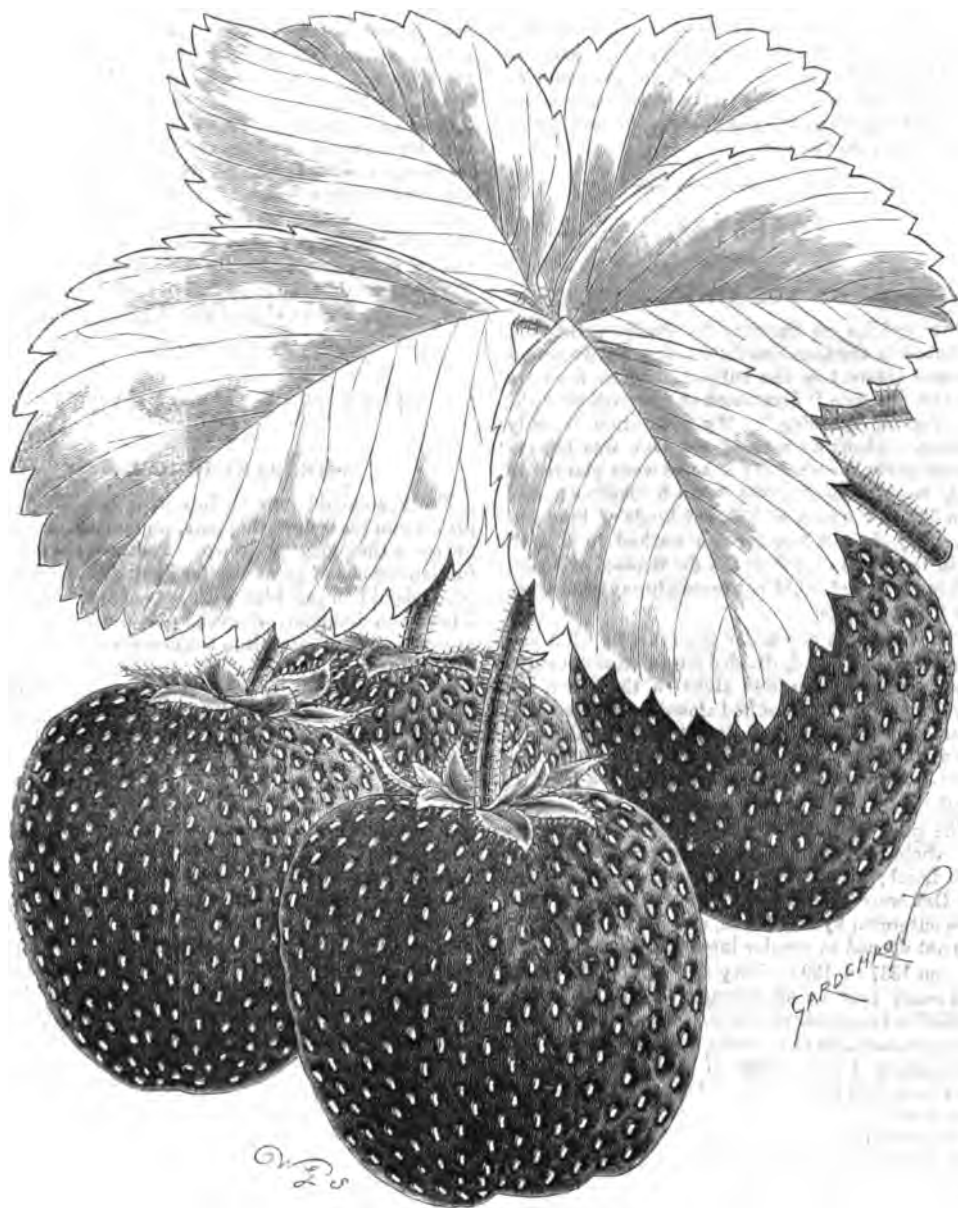


FIG. 129.—STRAWBERRY "TRAFALGAR."

Frogmore Late Pine, and the habit of growth of the plant is described as intermediate between the two parents. The fruits are of large size, wedge-like in shape, and less deep in colour than most of the varieties introduced by the Bedford firm. The flesh is white, much more firm than that of many of the newer Strawberries, and the flavour rich. The plants in pots staged at the meeting already mentioned, carried a sufficient crop to indicate a free cropping quality. A leaf is also shown in our figure. The petioles are slightly hairy, and the leaf itself, as shown, is thick, and perfectly smooth, occasionally five lobed. The introducers of the unrivalled Royal Sovereign allege that

CEYLON.

THE ROYAL BOTANIC GARDENS, PERADENIYA, CEYLON.

A few notes, written in the middle of February, on what may be termed a typical tropical garden, may have some interest. Probably at no other time of the year is the contrast between such a garden and an English one greater; not, however, that the latter is without charms even now, more especially in the memory of residents in a land where perpetual summer reigns, and Nature is practically never at rest.

Situated at an elevation of about 1500 feet above the level of the sea, 7° north of the equator, and with a mean annual temperature of 77° Fahr. (as low as 68° being seldom experienced), the features of the vegetation at the above headquarters of the Botanical Department in Ceylon may claim to be fairly representative of those which generally characterise the equatorial regions, and which, when available, are an unfailing source of interest and fascination to the botanist and horticulturist alike. Flanking the approach to these gardens of 150 acres, and close on a century old, is a row of tall, spreading trees, about 140 feet high, with remarkable buttressed trunks and flattened roots, the latter meandering over the ground, suggesting huge saurians. These the new-comer will be surprised to learn, notwithstanding a fair acquaintance with hot-house plants, upon which he is likely to reflect with pardonable pride, are *Ficus elastica*, an old favourite pot-plant.

On either side of the principal entrance stands a stately African Oil Palm (*Elæis guineensis*), the gate pillars being completely draped with *Bignonia unguis-cati* of Brazil, which bears a profusion of beautiful yellow flowers, and occasionally its curious long pods, which are from 3 feet to 5 feet in length. Immediately on entering, the visitor is confronted with a very fine oval group of Palms, containing some sixty species, representing all parts of the tropics; whilst forming an effective undergrowth amongst these are several species of Cycads. Over-shading the drive on the left is seen a good example of the amazingly luxuriant habit, combined with extreme beauty, which is peculiar to certain tropical climbers; this is the *Thunbergia grandiflora*, which, though soon becoming an unmanageable weed if permitted, is here allowed to form a dense screen of evergreen foliage, studded with large mauve flowers, reaching, by the support of tall trees, to a height of from 70 feet to 80 feet from the ground. Passing round to the right, the completely shaded Nutmeg-walk is reached, and few walks offer more temptation to visit than this. The Nectarine-like fruits hanging from the Nutmeg-trees in abundance, and in all stages of development, mixed with the flowers, some just "setting," others ripe and splitting open, displaying the large brown nut enclosed in the pretty bright red mace; the various other spice-trees—Clove, Allspice, Cinnamon, &c.—all are apt to make the stranger find some justification in Heber's "spicey breezes"—

"Where every prospect pleases,
And only man is vile."

Stretching out from the oval Palm group is the straight main central drive (see Supplement in present issue), which shows a portion of this, but it is impossible, even for the camera, to do justice to the scene, such is the wealth of colouring, the grateful coolness (which can only be fully appreciated in the tropics) from the chequered light, the indescribable mixture of odours, the chatter and cooing of bright-plumaged birds, and the murmur and buzzing of insects. Rising gradually from verges of Amaryllids, is a diversified collection of flowering and foliage shrubs, herbaceous and bulbous plants, shaded by a background of tall trees, interspersed with Palms.

One of the photographs sent represents the Monument Road, which leads to a cenotaph erected to the memory of a former director of the gardens. This stands on a knoll overlooking large expanses of undulating lawns, the lake, the Talipot Avenue (*Corypha umbraculifera*, the giant of Palms), the handsome bridge of Satinwood (*Chloroxylon Swietenia*) spanning the river which forms the boundary of the gardens. Along either side of the road is a row of circular beds, planted with more attractive or unique shrubs, and fringed by the large white-flowered *Amaryllis solandraciflora* and others. Over-arching the nearer end are two of the gorgeous-flowered Flamboyant trees (*Poinciana regia*), half hidden by *Petrea volubilis*, an exceedingly beautiful climber, producing here in great profusion its sprays of violet and turquoise-blue flowers; whilst the farther end is shaded by magnificent

specimens of *Terminalia Belerica*, *Pometia eximia*, &c., attaining to gigantic proportions; here also are some Australian Coniferae—*Agathis robusta*, *Araucaria Cooki*, *A. Bidwilli*, &c.; whilst close to these are such interesting and handsome trees as the Durian tree (*Durio zibethinus*), which produces excellent but malodorous fruit; the famous Upas tree (*Antiaris toxicaria*) of Java; the double Coconut-Palm (*Lodoicea sechellarum*); the Mammee-Apple (*Mammea americana*) of the West Indies; the Brazil-nut tree (*Bertholletia excelsa*); and the brilliant-flowered *Amherstia nobilis* and *Lagerstromia Flos-reginae*.

Passing through the Liane Drive there are seen some splendid Lianes, the great copy-right of the tropics. Here, in the tangle of untraceable festoons of huge and embracing climbers, which soar to the highest tree-top, abound the flying squirrel (*Pteromys Oral*), an animal of nocturnal habits, similar to a light-brown cat in appearance, and measuring over 4 feet from head to end of tail, and about the same in expanse of wings. Different from this, and somewhat smaller, is the Flying-fox (*Pteropus Edwardii*), a reddish-brown frugivorous creature, of gregarious and nocturnal habits. Certain trees, if tall enough, find special favour with the Flying-fox, colonies of which sleep together during the day, suspending themselves by their hind-legs to the branches, and thus away gently in the breeze till dusk. Sir John Lubbock said that in the tropics "everything seemed to climb to the light." Plants, beasts, insects, and reptiles climb, the latter including snakes as well as lizards, from a few inches to 5 and 6 feet in length.

Continuing on from Liane Drive, a fine solitary specimen of *Ficus elastica* is suddenly presented in view. The extraordinary character of the roots, resembling bulwarks or fortifications, may be seen to advantage. Creeping up to the topmost branches is the large white-flowered *Cereus triangularis*.

Incidentally, a tree of *Ficus religiosa* at Anuradhapura—once an imposing city, and capital of Ceylon, which the merciless jungle buried for centuries, but the ruins of which have lately been partly unearthed—is the oldest historical tree in existence. It was planted 288 years B.C., so that it is at least 2188 years old! This species is endowed with miraculous powers in native religion, and promotes the spiritual welfare of the Singhalese and other Asiatics. A true Buddhist will sooner sacrifice his pay than cut a twig or pull a seedling of this tree.

In the flower-garden is an octagonal plant-house to the right. Appearing above the latter is the crown of the wild Date-palm (*Phoenix sylvestris*), next to this being the straight and spiny stemmed *Acrocyne sclerocarpa*. A tall cluster of Palms with slender stems is *Oncozperma filamentosa*, and in front to the left is a handsome specimen of *Phoenix reclinata*, behind which are *Calyptrocalyx spicatus*, *Livistona*, &c. Here also is a variety of the more ornamental tropical climbers trained on trellis-work arbours, where they are seen to advantage. In the beds and borders the most showy Cannas, the variegated red and white Pine-apple (*Ananas sativus*, var. *variegata*), *Caladiums*, &c., make a brilliant display.

Passing through a Fernery and the Palmyra Avenue (*Borassus flabelliformis*), the visitor comes upon the imposing avenue of Royal Palms (*Oreodoxa regia*, see *Gard. Chron.*, May 12, 1900, fig. 96). New and longer avenues of this and other handsome Palms which have of late been planted, may be expected to form in time striking features in the landscape of these gardens.

Purely deciduous trees in the tropics are comparatively rare, and when they do occur they generally do not cast their leaves for the purpose of resting, but for bursting into blossom, followed by the fruit. A good example of this is the silk Cotton-tree (*Bombax malabaricum*), the large red, edible flowers of which cover the ground for weeks after the leaves have disappeared. Nothing can be more suggestive of a snow storm

than when the pods of this tree burst, during wind and rain, and their cottony contents are wafted about thickly in the air.

Taking the river-drive round the arboretum, the scenery is most picturesque. Mirrored in the Mahaweli river (the largest in Ceylon), which surrounds the gardens on three sides, are the feathery plumes of tall Bamboos, giant trees and Palms draped with luxuriant climbers, with imposing hills in the background. A single clump of *Dendrocalamus giganteus* ("Giant Bamboo," and monarch of the grass family), over 120 feet high, curves gracefully over the river (see *Gardeners' Chronicle*, Aug. 27, 1881, fig. 54). Apart from the scientific department—the Herbarium, Library, Museum, and Research Laboratory, &c.—there are other features in these gardens which prove equally attractive and interesting to the stranger, but fear of trespassing on your space forbids the mention of more. *H. F. Macmillan*.

FORESTRY.

THINNING OR NOT THINNING WOODS.

THE articles on Forestry by Professor Schlich, published in the *Gardeners' Chronicle*, have aroused renewed interest in the subject. Allow me once more to advocate "Treatment of plantations without regular thinning." My plantation is only 7 acres. About an acre of old Oak was left in various parts for shelter; 6 acres were planted in 1857, mostly Larch; 800 Spanish Chestnut, and from 500 to 100 each of different kinds of Pine and Fir. My Indian forester son worked in it with me in 1898, and says it is the finest piece of Larch he has seen, and could not certainly say that there was Larch disease.

The vistas, cut at regular intervals in what had been an old Oak wood, divided it into blocks, twelve trees in one direction, and eight in the other, the trees 4 feet apart. These had closed together so as to secure fair leaf-canopy, before the last cuts were made in May, 1890, 20 feet apart, leaving any forest-trees that stood in the cuts, and a few fine Larch.

The part that was enclosed from a field when the whole was planted (about an acre), was filled with Larch, among which a few Spanish Chestnut and Oak were scattered. Most of the forest-trees were outgrown by the Larch, and died. This part was not opened at regular intervals.

From 1887 to 1895, thirty-five full-length Larch died every year on an average. Forty-six deaths in 1893 is the greatest number entered in my log.

It is remarkable that, since 1895, when I made a cut through it from north to south, scarcely any trees have died in this part. Last month I cut two dead Larch there, one of which had been ringed by a squirrel 20 feet from the top. From 1887 to 1895 only two large Larch died in the wood, where openings at regular intervals have been made from time to time as the former ones closed up; two trees in 5 acres in nine years, not counting suppressed trees in either case.

In the paper you published in 1894 it appears that the vistas were begun in 1877, twenty years after the trees were planted, in a north-west direction from the roads. In 1881 the first cut was begun parallel to the road, and others in same direction in 1882 and 1883. Workmen, when cutting trees, were directed to throw each tree between two others when possible. This strips the standing trees of dead branches, so that many poles are bare of dead branches. In August, 1895, the dead branches left after fagoting in the 20 feet cuts were raked into the middle of the cuts and burnt. Then pits were made 6 feet apart every way, and 4 ft. from trees at the side of the cuts. In November we planted Silver Fir 12 feet apart in the middle row of pits, and filled the other pits with Beech. The pits were dug by day labour, and with a rooting-tool, and roots picked out, which made planting

easy. Scarcely any trees died. They have made good growth, and will soon cover the ground. They do not interfere with the constant circulation of air throughout the wood, as the open spaces are still the warmest by day and coolest at night. The thick parts being coolest by day and warmest by night.

In 1896 and 1897 a few Larch were cut that either got their heads round a neighbour or were whipping better trees; none was blown down. In 1898 my forester son persuaded me to give up the idea I had of cutting 20 feet cuts in the middle of the 80 feet blocks in 1905, and we cut one of every two Larch in the thick parts that were 4 feet apart—twenty-four dozen and two trees. In November, 1898, I planted 400 Silver Fir and 550 Beech in the thick parts. A good many seedling Silver Fir, Beech, Spanish Chestnut, Ash, and Oak, have sprung up since 1895. Pits will be made after harvest for Silver Fir where there is head-room, and for Beeches under Larch and Fir, and under-planting continued next autumn. Then the plantation will be near perfection, and I am quite satisfied that the late Mr. Enys's plan is the best for growing timber and poles, and only wish that someone of influence would take it up before I am taken to my rest. *Henry Rogers, Captain R.N., Plymouth*.

CULTURAL MEMORANDA.

CHRYSANTHEMUMS.

No time should now be lost in transferring the plants into their flowering-pots, no matter for what purposes they may be grown. Plants intended to furnish blooms of great size for exhibition or otherwise, should be provided with pots of not less than 9 inches in diameter, when the plants are of strong growth, and were struck in the months of December and January.

It is not possible to grow the Japanese varieties too vigorously, if the plants have sufficient standing room to enable the growth to be fully matured. It is from sturdily-grown plants, with fully-developed leaves and hard brown-coloured stems, that blossoms of the best quality are obtained, and it is only vigorous growth made during the months of June, July, and August that can produce them. It will sometimes happen that the stock of flower-pots in hand are of too large a size for single plants, but this can be got over by growing two plants in a pot, the chief point being in so doing to put only the same varieties in a pot, two varieties being seldom exactly alike in growth; and it is difficult in the autumn to arrange the plants when the growth is so diverse. Flower-pots 10 inches in diameter will accommodate two plants. Bushes of single-flowered varieties or pompons, or even the small-flowered Japanese varieties, will succeed in 8-inch pots, and are then handy for the decoration of apartments.

The compost used at this shift should be prepared with care, the plants having much to do in a short space of time. Turfy-loam, such as that afforded by the top spit of an old pasture, carted-in sufficiently long as to have become half decayed, should form the staple portion; and the manure required should consist of half decayed horse-dung, one part of this to three parts loam, adding wood-ashes, charcoal, and sand, in sufficient quantity to render the whole porous; the character of the turf being a good guide as to this matter. If the soil is heavy and retentive of moisture, or of a kind that runs together easily, much of the latter kind of material will be needed. To every bushel of compost prepared, add 2 lb. of Thomson's Vine-manure.

Chrysanthemums are moisture-loving plants, but they do not like stagnant water in the soil, therefore good drainage is an essential. Sometimes plants are noticed, the colour of whose leaves is pale green; and if the roots of such plants are examined, they will be found to have received a check from the unhealthy condition of the soil. Let only

clean crocks be used in the drainage, and cover them with bits of turf and charcoal, in such a manner as to prevent the finer particles of soil from filtering down among them, and blocking the passage of the water. Some persons sprinkle soot over the turf at the bottom, with the idea that worms are thus prevented from entering the pots. To prevent their ingress, Porter's wire-crocks are capital things to use. A quantity of soot, so placed that the roots come into direct contact with it, is liable to injure the points of the latter. Chrysanthemums like soot, but it is better to apply it in liquid form later on. Let the plants be potted firmly, as a means to induce the formation of firm wood; and be sure that the ball is thoroughly moist before

bed of stones or clinkers, covered with coal ashes, will suffice; but what is a still better plan is to stand the pots on boards, slates, or each pot on two bricks, immunity from the entrance of worms to the roots being then assured.

Where an open space such as that suggested is not available, so that the plants can be kept in one block, one side of a path in the kitchen garden is a good site for a row; as there the plants are readily attended to, and they receive abundance of light.

Some form of support will be necessary for tall growers. Two wires stretched to a stout post at each end of a row, with a few light intermediate supports, is a good one. The pots are stood about

PLANT NOTES.

PANAX MASTERSIANUM (HORT. SANDER).

THIS was figured, and in part described, in the *Gardeners' Chronicle* for April 23, 1898, p. 242, fig. 88. It has recently flowered in the nursery of Messrs. F. Sander, of St. Albans. Unfortunately, only male flowers were produced, so that there is still some uncertainty respecting its nearest affinities. Messrs. Sander sent a full-grown leaf and the whole of an inflorescence to Kew. As described in the place cited, the leaf is singularly formed, being, in the specimen received, about 3 feet long, simply pinnate to about the middle, where the rachis forks, and the upper half is thus bipinnate. The inflorescence, apparently terminal, consists of eight primary branches, about 2 feet long, radiating from a point in the form of a huge umbel. The branches bear whorls of branchlets at distant intervals, each branchlet terminating in a small umbel of minute green flowers. Sometimes there are also lateral umbels. The petals, five in number, are strictly valvate, cohering at the tips, and are thrown off in the form of a calyptrum (like those of the Grape-vine) by the expanding anthers, and there are five rudimentary styles in these male flowers. This plant is a native of the Solomon Islands, in the region of New Guinea, where it was discovered by Mr. Micholitz, and imported by Messrs. Sander. It will only be grown for the sake of its ornamental foliage. *W. Botting Hemslay.*
[We reproduce the original illustration (see fig. 130. Ed.)]

FERN SPORANGIA.

THE sporangium of a Fern is the little capsule containing the spores, and although the latter are usually so small as to be individually all but invisible to the naked eye, the capsule containing some scores is naturally so much larger as to be plainly seen, though to study its details a strong pocket lens is requisite, or even a low power microscope. As one of Nature's innumerable devices for protecting seeds, or their equivalents, in the first place, and for scattering them when ripe in the second, the sporangium of a Fern is an extremely interesting contrivance, and if the trouble be taken to scatter a number of them upon a glass slip before they have burst, and to place the same under say an inch objective, the observer will probably be very much startled by the explosive tendencies which will come themselves immediately they begin to dry out, which usually is directly they are spread upon the glass in the dry air of a dwelling-room. The entire heap is seen at first to have a slow internal movement among its constituents, as their stalks commence to bend and stiffen, and presently probably the whole mass will fly out of the field of view, leaving a scattered hail of spores in its place; or individual capsules may be seen to fly open and spring to some distance scattering their particular contents in all directions. Meanwhile the hail will be observed to be continued, fresh batches of spores being shot into the field of view, from the scattered heap which now lies widely spread upon the glass slip, continuing its bombardment from fresh sites. The *modus operandi* of the spore-case itself is as follows. Each case consists of a tiny oval receptacle borne on a short-jointed stalk; this jointing, however, is continued on one side of the capsule until it reaches the top, and extends some little distance down the other side, like a jointed ridge on a fireman's helmet—just below its termination, where the fireman's nose would be, is the weakest part of the capsule. As the capsule dries, these joints shrink, and cause a continually increasing strain, until presently a split appears at the weak point aforesaid, and then suddenly the whole top of the capsule flies backwards, jerking the contained spores far and wide. Under ordinary circumstances, and in still air, "far and wide" must be taken as a relative term in connection with



FIG. 130.—PANAX MASTERSIANUM.

re-potting, it being not good practice to afford a quantity of water to newly-potted plants, as it leads to souring of the soil.

After re-potting, let the plants be syringed thrice daily if the weather be hot and dry. The roots quickly run into the new soil, if it is as it should be—moist—when employed. For the summer quarters of the plants choose an open sunny position sheltered from south-west and easterly winds, but especially the former, as when strong gales are experienced from that quarter at the end of August or early in September, much damage is often done to plants in exposed situations. Not only are the bloom buds with their long peduncles broken, but the leaves are so whipped as to render them almost useless.

The pots should be stood on a hard surface, so drained that water quickly passes away. A thick

1 foot apart, the stake in the pot to which the centre stem is tied is made fast to the wires. The two side shoots are secured by tying light stakes to the wires, and to these the shoots are made fast. In this manner all the leaves receive plenty of sunlight; and they mature perfectly.

When the plants are taken under cover in the autumn, the two side-shoots are released from the small stakes on the wires, and looped to the stake in the pot; thus but one stake is required in the pot, which is all the better for the roots.

Careful application of water is an important factor in successful culture, and at no time should the plants be afforded water indiscriminately. The plants should be examined at the least twice daily, and in very hot weather thrice will not be too often. At such times the leaves should be syringed both morning and night. *E. Molyneux.*

the size of the spores and their cases; and probably an inch or so would represent the average range of these mimic bomb-shells. In dry, breezy weather, however, which would be precisely such as would tend to burst the capsules by desiccation, the wind would certainly convey the freed spores to considerable distances; and the fact that they are shot out even for a small distance would help dispersion far more than a non-explosive extension, involving little or no scattering at all. One of the most remarkable features in connection with these sporangia is the extremely close resemblance those of most of the Fern genera bear to each other, and the absolute identity of their mode of bursting and scattering their contents. Although there is a fundamental difference between a seed and a spore, the functions of the capsule as a container and disseminator must be regarded as identical with those of seed-vessels. In these latter, however, we have an infinite variety of form and contrivances directed to these same ends; every genus, every species, and sometimes even the varieties have distinct characteristic features, but despite the enormous diversity of Fern-form, ranging from tiny grass-like plants to grand Palm-like tree Ferns, and although we shall find a considerable range of difference in detail of the contained spores, the spore-cases of all are closely alike, the vast majority possessing the same vertical ring, and the rest a more or less horizontal one accompanied by modifications of shape of the capsule itself.

This lack of diversity is doubtless due to the fact that no such evolutionary forces have acted upon the spore-heaps, as have been experienced by the flowers. With the latter more and more complicated relations with the insect would have in time modified the flowers to an infinite extent, and the seed-vessel being simply a development of one part of the floral system, has naturally been modified also. Other evolutionary factors too have moulded the floral world, modifying the foliage; and through that the flowers which are modified parts of its various methods of seed dispersal, favouring under dissemination, have also originated, and in these developments transformed the seed into self-dispersing ones, as in the Dandelion and kindred plants.

In Ferns the sporangium, though possibly a modified frond, is not perceptibly modified comparatively with the fronds of the species to which it belongs, its situation, mode of arrangements and attachment, the nature of its cover or absence of any, are certainly correlated with the venation and form of the frond, and this so constantly as to form one of the most reliable specific characters; the spores too vary considerably, smooth, oval, corrugated, ribbed, and ridged, yellow, brown, and green, so that curiously enough the spore-case remains the more constant feature. This stability of form in Ferns is the more remarkable when we consider how widely the spore capsules of Mosses vary in shape and in detail; and descending still lower in the cryptogamic scale, how varied are the spore receptacles of fungi. Specialists in these branches can generally determine the genus and species by the peculiarities of the spore receptacles, but few, if any, pteridologists confronted solely with a collection of isolated sporangia, could determine with any certainty even the genus of most of them. Differences, however, do exist. Nature rarely repeats herself to the minutest detail, and it is quite possible that special investigation in this direction and comparative drawings to scale, showing the number of joints, mode of segmentation, shape of capsule, colour, and so on, would reveal characteristic and constant mimic features of great value for reference and confirmation of kinship. In the present classification there are many anomalies, the actual cultivator is frequently quite unable to agree with the scientific botanist, the identifying characters being too indefinite, and often associated with contradictory characters of another kind. Careful study of the sporangia might well lead to wider knowledge and greater correctness. *Chas. T. Druery, F.L.S., V.M.H.*

THE WEEK'S WORK.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Leeks.—The plants of the March sowing being now fit for transplanting may be put out in an open position, where the soil is moderately enriched with manure. It is usual to plant Leeks in trenches rather shallower than those made for the early Celery, a 4-inch layer of rotten stable-manure being laid at the bottom, and covered with a similarly thick layer of earth; the trenches when ready for planting being about 6 inches deep. The trenches should be dug at 3 feet, and the plants put out at from 9 to 12 inches apart. The earth should be drawn up to the plants as growth proceeds, in order to blanch them. In gardens where labour is scarce, a piece of rich ground should be made level, and holes made with a dibber 3 inches in diameter, and about 1 foot deep, and the plants carefully lifted and dropped into these, and as much soil afforded as will cover the roots. Planting finished, afford the beds and trenches a copious application of water, and use the hoe often when growth has begun, so as to work the soil into the holes, being careful not to bury the leaves.

Globe Artichokes.—Where heads are showing on these plants, rich mulchings should be applied, more especially if the soil be light. In dry weather the plants should be afforded water twice a week.

Artichokes (Jerusalem).—Tubers of these which were lifted and planted on fresh ground as advised in the January calendar, need not be thinned, but where a plantation has grown on the same plot for two years in succession, all weakly growths from stray tubers should be dug up and thrown away, and on poor land rich mulchings should be afforded, or failing these, guano should be applied before rain.

Onions.—Autumn-sown crops will now require attention. The beds should be well hand-weeded; and the laying down of the stems should be performed with the hand, the stems being bent over at about $\frac{1}{2}$ an inch above the top of the bulb.

Cauliflowers.—Plants of Autumn Giant and Veitch's Self Protecting, raised from seed sown early in the spring, being now sufficiently large for transplanting, may be set out in drills drawn as if for Peas, at 2 feet apart. When lifting the plants from the nurse-bed use a hand-fork, and secure a ball of earth with each. When planting, make the soil firm round about the roots and stems, and afford plenty of water if the weather be dry. The Early Forcing, Early London, and Walcheren, are now turning-in, and an occasional application of liquid-manure will do them much good. Tie the leaves loosely over the heads.

Celery.—In May directions were given for the preparation of the trenches for the main crop of Celery, and at this date a commencement may be made, whatever be the state of the weather. The day before a beginning is made the ground should be trodden firmly, and the trenches afforded water. The plants should be carefully lifted with a trowel a few at a time, and planted without delay at a distance of 1 foot apart.

PLANTS UNDER GLASS.

By T. EDWARDS, Foreman, Royal Plant Gardens, Frogmore.

Lilies.—Those intended to flower in the autumn, viz., *Lilium longiflorum* and its variety *Harrisii*, and *L. speciosum*, and which have made stem-growth of 2 to 2½ feet, may be secured to neat stakes, and afforded a top-dressing of loam and well-decayed stable-manure, the necessary space for which was left when the bulbs were potted. Failing the required space for the additional soil, a tin or zinc hoop may be put within the rim of the pot to retain the top-dressing. These plants may be stood on coal-ashes under a north wall.

Humex elegans.—This plant may be similarly treated to the foregoing, and afforded diluted soot-water at the root once a week.

Affording Water to Plants.—Particular attention will be called for in regard to all kinds of plants growing in pots, in order that they do not lack water at the root, and more especially such as have filled their pots with roots. Of such I may mention *Campanula pyramidalis*, *Cannas*, *Hedychium*, *Kalosanthes*, *Gladiolus The Bride*, &c., which may stand in need of water being applied twice or thrice daily.

Primula sinensis.—These plants may be removed to cold pits, in order to prepare them for the last shift. Let strict attention be paid to shading them, discontinue the use of permanent shading, and maintain humidity in the pits and floor beneath it, by damping the air or staging; and afford air freely, otherwise the plants will get drawn.

Cinerarias and Celosias.—Continue to re-pot the young stock of these plants, and stand them widely apart, so as to avoid weak growth and etiolation. *Celosias* should be syringed twice a day, in order to prevent attacks of red-spider.

Indian Azaleas.—When the growth of these plants is completed, and flower-buds form, a cooler treatment should be enforced, and early in July they should be placed out-of-doors in half-shaded positions, taking care that worms do not get into the pots. They may be syringed daily in hot weather. *A. mollis* and *A. rustica*, if for forcing, are best kept in pots, for being surface-rooting, they are if planted out in peat-beds, difficult to re-pot in flower-pots of moderate size without damage being done to the roots; but they may be grown in pots for years by re-potting them from time to time as may seem to be required, and by careful root-feeding—moreover, they can be forced early more readily than plants lifted from the open. During the season of growth, weak manure-water may safely be applied alternately with clear water to both Indian and Ghent Azaleas, with marked improvement to the foliage and the endurance of the flowers. In a general way, however, manures should only be afforded to plants growing in pots when they are in active growth; and in the case of Azaleas and other hard-wooded plants, only clear water should be afforded after the flower-buds are set.

Artificial Heating.—With the exception of plant-stoves, the use of fire-heat may now be discontinued during fine weather. In houses containing plants of *Nepenthes*, *Alocasias*, and *Anthuriums*, it will be desirable to keep them slightly warm by the heating apparatus during the night, otherwise growth may be checked.

Allamandas, Stephanotis floribunda, Clerodendrons of species, when in bloom should be afforded at regular intervals applications of manure-water, which, if the pots are properly drained, will do much good. These plants are gross feeders, and if a top-dressing of cow-manure can be applied as well, much needed support is afforded the plants when in bloom.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener to F. A. BEVAN, Esq., Trent Park, New Barnet.

Dessert Cherries.—In this district the fruits of the early varieties are changing colour, and it is pleasant to note that but few dropped whilst stoning. It is very necessary in country gardens to place nets over the trees, or much of the fruit will be taken by the birds. The trees should first be summer-pruned, and then washed of the remains of blossoms, and dust and dirt, with the garden engine, &c. If aphid infest the shoots, let them be dipped into tobacco-water, made with 1 lb. of tobacco-pipe and 1 gallon of boiling water, and when all the killing properties have been extracted from the paper, strain the water and dilute it with 1 gallon of cold water, and it is ready for use. The mid-season and late varieties may be sprayed with an insecticide should aphides be very numerous on the shoots.

Kentish Cherry.—Although this variety succeeds well as a next tree, it is mostly grown as a bush. On walls this variety is subject to be seriously infested with the black aphid, but in the open it is seldom so infested. Infested trees should be dealt with as mentioned above. These trees will soon require to be netted over, for although the fruits are acid, the birds are very partial to them. Before netting the wall-trees, pinch back all the breastwood and surplus shoots to three or four leaves each; and with regard to bush trees, I have always found it good practice to pinch-out the ends of all young growths, which tends to keep the trees compact and well furnished with wood, while it prevents the bushes losing their neat appearance.

Morellos.—Wall trees should have the bearing wood of next year thinned to due proportions by disbudding, the remaining shoots being secured to the wall by ties or shreds and nails. This variety of Cherry is a gross feeder, and a mulch of partly-decayed manure is of great service to it. If liquid-manure is abundant, it may, when

diluted, be used in addition to the mulch with the best results in regard to the crop and size of the fruits. Let the points of shoots on bushes and pyramids be pinched-out in order to give compactness of form; and wash them as frequently as circumstances permit. Precisely the same species of aphids infests the Morello as the foregoing, and the same remedies apply. Later in the season I have known the slug-worm to attack Cherry-trees in the open, but this pest is got under by dusting the trees with powdered lime, followed by a copious washing with cold water about an hour afterwards.

Gooseberries on trellises.—These should be looked over, and with a pair of pruning-scissors cut back all growths emanating from the spurs to four leaves. Leave a shoot whenever required for filling up gaps, and for extension; and in the case of branches which show signs of becoming exhausted, train up as young shoots from the base to replace them. Place a mulch of long litter under the plants. The same precaution should also be adopted with regard to bushes in the open quarter.

Wall Currants.—These should be summer pruned, and mulched as advised for Gooseberries, for the same reasons. Those growing on a north wall for the late supply should be well looked after, and on no account allowed to become dry at the roots, otherwise the fruit will not hang the desired length of time without shrivelling.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN Bart., Clare Lawn, West Sheem, S. W.

Eulophiella Elisabethae.—This species is well deserving the attention of the gardener, as it always commands the admiration of all who see the plant in flower. Its rhizomes have by this time reached their limit of growth for the season, and the formation of roots and leaves will soon take place, hence the necessity of having the compost in a satisfactory state. If a new pot is required, carefully remove the whole of the decayed material and the roots which may be dead, and arrange it in another pot, employing a large quantity of crocks. Our plants of this species are growing in "Sander's Perfect Orchid-pans," which are suspended at the warmest part of the Phalaenopsis-house. They grow in a mixture consisting of two parts peat, one part turfy loam, together with some sphagnum-moss (chopped finely), small crocks, and sand. I place this compost rather loosely about the roots, so that the generous supplies of water, required by the plants during growth, pass away freely. Growth will be made till the end of the year, and dryness at the root must be avoided all that time. There should be no difficulty in this matter if a hot, moist, not over-shaded position can be found for the plant. Drier conditions should prevail whilst the spikes are forming and until the roots emerge from the new root-stock. Red-spider must be kept under by spraying and sponging the leaves frequently.

Epidendrum bicornutum belongs to the so-called botanical Orchids, but it is really a very beautiful decorative plant when in vigorous health, a condition rather difficult of attainment owing to our variable climate. The plant delights in sunshine, and success seldom rewards the gardener when cold, cloudy weather often occurs during the summer. The plant now commencing to grow, if established in a sound basket, may have the stale sphagnum-moss replaced with fresh. The plant should be fixed in a basket with crocks to near the surface, with a layer of moss on the top, and be suspended in a hot, moist part of an East Indian-house, where the roller-blinds are removed early in the afternoon. Here, all through the growing season, in bright sunny weather, water in abundance should be afforded; but, when spells of cold, cloudy weather intervene, great care is necessary, or an over-saturated base in combination with excessive moisture in the air, may induce decay in the young growths. When the latter are nearing completion, much less water should be applied, though, as their bulbs are hollow, long periods of drought should be avoided, or shrivelling, from which they would not recover, would occur.

Epidendrum Stamfordianum is another species of merit, what is lacking in size being made up in quantity of bloom. The flower-spikes produced from the base of pseudo-bulbs are many-branched and heavily flowered. This species grows admirably under similar conditions to those advised for the

last-named. Put a small quantity of peat in the compost when potting this species, and afford a longer and more decided rest when root-action is dormant.

Odontoglossum crispum and allied species and hybrids, as soon as their flower-spikes are removed, should be induced by keeping them moderately dry, to take a rest before another cycle of growth commences. Inattention to the fact that these plants require a thorough rest after flowering is one of the causes of failure with them. Shrivelling in the old pseudo-bulbs through drought will effect less harm than an excessive amount of water to counteract the drying influences of the summer heat. A moist, cool atmosphere should be afforded, with an abundance of air. The chief thing to guard against is a large amount of water at the root in the resting season.

THE FLOWER GARDEN.

By J. BENLOW, Gardener to the Earl of Ilchester, Abbotsbury Castle, Dorsetshire.

Aralia japonica.—When the climate permits, this plant forms a desirable object out of doors. At Abbotsbury, seedlings spring up and grow without any sort of protection. In less favoured situations a position protected from cold winds should be found for the plant, and the drainage should be good naturally, or means taken to make it so. A hole much bigger than the ball of the plant it is purposed to plant should be dug, and rich turfy-loam $\frac{1}{2}$, leaf-mould $\frac{1}{2}$, together with road grit and $\frac{1}{2}$ -inch bones, should be mixed together, and used in filling-in the hole. When a plant has become established, weak liquid manure may be applied occasionally during the season of growth, which will have the effect of giving a good appearance to the foliage at midsummer. Aralias should not be restricted in the matter of rooting space. Before planting loosen the roots on the outside of the ball with a pointed stick, and carefully place them at various heights in the compost, whilst filling-in around the ball, and make the whole firm by treading as the work proceeds. Make secure against the wind, and apply water copiously when all is finished. When saving seeds of *Aralia japonica* and *A. mandshurica*, muslin or paper-bags should be placed over the spikes whilst the seeds are still green. Blackbirds and others are fond of the berries when approaching ripeness. It is advisable to clean the seeds as soon as the pulp parts freely, and sow them forthwith.

Carnations.—Where rain has fallen it will have been of much assistance to these plants, and supports will forthwith be needed by the flower-stalks. Let each flower-stalk have space for the full development of the flowers without crowding. If flowers are required for exhibition purposes and indoor decorations, it may be advisable to remove the weaker buds and even some of the weaker sprays. If aphides infest the plants, spray them with nicotine or quassia water. Carnation-rust should be checked by removing infected leaves as soon as noticed; or if the attack be a bad one, pulling up the plants and burning forthwith. Keep the soil aerated by stirring the surface, and when flowers begin to open, afford liquid-manure copiously; not, however, using it in a strong state, or pouring it against the necks of the plants, to avert which some earth might be drawn up to that part with a trowel.

Pegging the Shoots of Bedding Plants.—Before pegging down Petunias, Heliotropes, Verbenas, and Mesembryanthemums, the beds should be scratched with a single-handed fork. In laying the plants it will be found necessary to stop the stronger shoots, in order to encourage the growth of laterals, and with Verbenas pegging should be performed carefully forthwith, growth being more pliable when quite young.

General hints.—Give attention at short intervals of time to the mowing and rolling of the lawns, and to keeping gravel-paths clean and smooth. Climbers, such as Clematis and Roses, which may be growing against the walls of the dwelling or other places, will need attention in the matter of regulating and securing the shoots. Ivies growing on walls which are annually clipped, are improved by an occasional washing of the foliage with clean water. Hedges of Yew and Euonymus should be trimmed at this season, and again two months later, oft-repeated clipping making such hedges the best of wind-screens. In trimming a hedge, keep it wider at the bottom than at the top.

FRUITS UNDER GLASS.

By J. ROBERTS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Strawberries.—With the close of the forcing season for the Strawberry, operations for next year's forcing should be commenced. An early start with layering is essential in securing a heavy crop of fruit. The best runners are generally to be found on beds planted late in the previous summer; and if these beds are dry, water should be copiously afforded them, which will have a good effect on the production of the runners. Methods of layering may vary, but for the earliest batch, I consider that layering in pots in small 60's is best. The runners soon fill this sized pot with roots, and are then ready for potting into the fruiting-pots in a very short time after removal from the parent plants. For later pottings I prefer layering in large 60's, as the plants do not suffer, but continue to grow while waiting to be repotted into their fruiting-pots. Another good method is to layer the young plants into their fruiting-pots at once. There is one distinct advantage attached to this method. The pots (32's) can be filled with a much rougher and more turfy soil, which will keep open for a longer period than the finer soils, which must be used with smaller pots. A young plant placed at once in a 32-pot filled with rough compost grows with great vigour, and soon forms the fine crown so much liked in plants that are forced early. A few hundreds of plants layered on squares of tough turf (3 inches square) will be found very suitable for planting in frames. These, when established, may be planted about 10 inches apart, and if kept well watered up to the end of the growing season, will yield a large amount of fruit before ripe fruit from out-of-door beds is obtainable. The most satisfactory Strawberry for forcing is Royal Sovereign, and this should be grown in preference to any other. In all cases use clean pots, afford good drainage, and take means to keep the pots free from worms after the final repotting.

Tomatos.—In order to keep up a regular supply during the autumn months, a sowing of some approved variety should now be made, sowing thinly in pots and placing in gentle heat. As soon as the seed germinates, place the young plants under cool conditions near the glass, in order that they may grow stocky and strong. When fit for planting out, a house facing south, with good means for supplying heat, should be selected, and endeavours made to obtain a good set of fruit before the dull days set in. The fruits will ripen slowly during the autumn months, and will continue into the winter. A batch of plants may also be potted-up a little later, which will be found useful for moving into warm-houses later on in the summer. Plants now bearing full crops of fruit should be relieved of their fruits as soon as they ripen; and liberal root-feeding will keep the plants fruitful. Let constant attention be paid to pinching out laterals, but do not practice defoliation more than is necessary to admit sunlight to the flowers. Afford air freely on all occasions, keeping the air of the house dry during dull, moist weather.

Cucumbers.—The demand during the summer season generally leads to the plants being heavily fruited, and plants put out in the spring will be getting exhausted at this date, making it necessary to replant a house forthwith for early autumn supply. Bottom heat is indispensable, and the preparation of a good bed of tree leaves, and fresh stable manure by frequently turning it before use, should be made. Let this bed be made very compactly, and at the least 3 feet deep. On this surface some well-rotted turf and leaf-mould must be put, in hillocks about 4 feet apart, and brought up to within 1 foot or thereabouts of the trellis on which the plants will be grown. Planting should be done in the afternoon, and immediately afterwards, afford water and close the house. A light shading for a few days after planting will help the plants to establish themselves. Old fruiting plants which it may be desirable to retain for a time longer, should be rather severely pruned, the older leaves and part of the old bine being removed, and after this is done afford the beds a top-dressing of well-decayed manure. It is not too late for planting in frames, set on beds of fermenting materials at least 4 feet deep. In frames sunheat should be utilised by early closing the lights at 3 to 3.30 p.m.; and the frames should be matted at night, in order to retain the heat and prevent condensation of moisture on the glass.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER. Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

*TUESDAY, JUNE 26 { Paris Universal Exhibition (temporary Show).

Royal Horticultural Society's Committee, in connection with the Annual Show of the Richmond (Surrey) Horticultural Society (2 days).

WEDNESDAY, JUNE 27 { National Rose Society's Exhibition, at Salisbury; and Wilts Horticultural Society, also at Salisbury. Southampton Horticultural Society's Show.

THURSDAY, JUNE 28 { Colchester Rose Show. Canterbury Rose Show. Isle of Wight Rose Show, at Ryde.

[* We have reason to believe that this show has been deferred until June 27.]

SALES.

TUESDAY, JUNE 26.—Sale of Orchids, at The Nursery, Park Lane, Tottenham, by order of Mr. G. E. Pennett, by Protheroe & Morris.

FRIDAY, JUNE 28.—Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chislewick.—52° F.

ACTUAL TEMPERATURES:—

LONDON.—JUNE 20 (6 P.M.): Max. 69°; Min. 54°.

PROVINCIA.—JUNE 20 (6 P.M.): Max. 63°, off Cromer; Min., 55°, Holyhead.

In accordance with the promise given at the last general meeting, the Council of the Royal Horticultural Society have distributed among the Fellows a copy of the proposed bye-laws necessitated by the new charter. The thanks of the Fellows are due to the Council for this opportunity of perusing a document which should be of great interest to them, but which is rarely thought of till some emergency arises.

We trust that those interested in the Society's business, and especially those conversant with its history during the last twenty or thirty years at least, will carefully peruse the new proposals, and be ready to suggest such alterations as they may deem necessary. The Council, which is second to none of its predecessors in its enlightened interest in the Society's welfare, will, we are sure, be glad to know the wishes of the Fellows, and to act up to them so far as possible.

A cursory inspection of the bye-laws reveals, except in one instance, little to be amended beyond minor verbal changes and transpositions. The exception is in §§45-47, where voting by proxy is enjoined under certain conditions.

There is much that is specious to be said in favour of proxy voting as affording Fellows at a distance an opportunity of expressing their opinion, but the possible disadvantages have long since been proved to outweigh the benefits of proxy voting. The question was fought out

in this Society several years ago, and we had thought that matter settled for all time. The members of the present Council are probably most of them personally unaware of the decisions then arrived at. It seems therefore likely that the Society's lawyers have inserted this paragraph, as it is improbable that the members of Council, mindful of what had been done by their predecessors, would revoke the regulations as to proxy.

Probably two-thirds of the Fellows of the Society have little knowledge of the charter and bye-laws, and no interest whatever in them. The further they reside from the metropolis the less their knowledge is likely to be. Speaking generally, it is the Fellows residing within a circuit of forty or fifty miles who are most concerned in the official business of the Society. The comparative proximity of their residence enables them, without inconvenience, to take part in the actual work of the Society, while those at a greater distance are debarred from so doing. The proxy system enables those at a distance whose acquaintance with the merits of any particular question is of necessity none, or next to none, to exercise the same voting-power as those who are not only conversant with the business of the Society, but bear the burden and heat of the day.

A proxy vote, then, as a rule, expresses not the individual judgment and opinion of the voter, but of sundry wire-pullers in this or that direction. If a Fellow, on a grave emergency, is unable to record his vote personally, still more if he has so little interest in the Society as to be unwilling to take the trouble to do so, he has no right to complain if the power of voting by proxy is not conceded to him.

On Some Difficult Cases of Germination.

A RATHER important paper with this title, by M. NOËL BERNARD, has appeared in the April number of the *Revue Générale de Botanique*; for it would seem to throw some light on the reasons why it is so difficult to raise Orchids from seed. The author considers it to be a question of symbiosis.

He commences by observing that the constant presence of endophytic fungi in the roots and rhizomes of Orchids is a well known fact. Thus, WAHLRICH in 1886, was the first to show the generality of the phenomenon, in that he found them to be present in no fewer than 500 exotic species.

The fungi belonged to different species of Nectria, but the ascospores of species of *Fusarium* are also easily recognisable; they are localised in the subterranean parts, not being found in the stems, flowers, fruits, or seeds. The seeds of Orchids consist of a delicate and dead skin, in which is an undifferentiated ovoid or globular pro-embryo.

The author undertakes to prove that infection is necessarily very early, from direct anatomical observations, and from a critical examination of the conditions of germination. Germinating plants of *Neottia nidus-avis*, and a hybrid *Lælia*, furnished the material for observations. He found the fungi in all those which he examined, and already present in the youngest plantlets, still enclosed within the untorn integument of the seed. He describes it as follows: "In a section of the plantlet, one sees in the infested cells a very distinct knot of mycelial filaments. In older specimens, the filaments are less and less distinguishable, until the knot finishes by being reduced to a great brown mass adherent to the nucleus. This brown matter has often been observed, but the endophytic character of the fungus which originated it was not recognised. It has

been seen in members of the sub-orders, *Epidendreae*, *Vandeeae*, *Neottieae*, and *Ophrydeae*.

M. BERNARD observes that to make the seeds germinate, horticulturists sow the seed upon sphagnum on the surface of a pot containing a living plant of the same species. They have noticed that the germination does not succeed upon a substratum identical in composition, but which has not contained a plant of the same species. Hence, they have formed the opinion that there must be such a plant to "purify" the soil upon which the germination of the seeds can take place. M. BERNARD observes that for his part, he would offer an inverse explanation, viz., that the adult Orchid itself "infects" the substratum with the fungus, without which the germination cannot be effected.

The author mentions a case of seeds of *Lælia cinnabarina* × *Lælia purpurata*, which were sown on March 6, and germinated, the most advanced having a little green leaf, in October. The swollen pro-embryo was still in the seed-akin in every one examined. There were also numerous mycelial filaments of *Fusisporium*.

When many plants of the same kind are grown, as for cut flowers for market, the difficulty of raising seedlings is much reduced, because many plants of the same kind are grown; but germination does not succeed when one cultivates various species. M. FINET, who possesses a very varied collection of Orchids, has often tried to produce germinations by sowing the seed in separate pots upon different soils, but has never succeeded.

This has given rise to the opinion that the germination of Orchids is "capricious." Thus, seeds of *Cypripedium* germinate after various periods of delay. M. BERNARD would not refer them to individual differences as the causes, but to the probable fact of the seed having not been all infected by the mycelium together.

The author took fragments of roots and rhizomes of *Neottia nidus-avis*, which were infested by the endophyte *Fusisporium*, and found, as the portions died, that the fungus covered them with mycelium and produced spores. It thus contributed to the destruction of the isolated roots, &c. But whenever it is within the living plant in its entirety, then the same fungus appears to act as a stimulus which enables the seed to germinate. The practical conclusion, therefore, is that the seeds of Orchids will be found to germinate best in the soil in which old plants of the same kind have been growing.

The author then proceeds to describe the germination of members of the orders *Lycopodiaceae* and *Ophioglossaceae*, which resemble Orchids in having endophytic fungi living within the germinating spores in a symbiotic relation with them.

All horticulturists have experienced the difficulties connected with the germination of Orchid seed. Thus Mr. H. J. VEITCH writes, after speaking of the production of capsules:—"Then arose a great difficulty, and which our long experience has enabled us to make only a short step towards overcoming, to discover the most suitable method of raising seedlings. . . . Following, or at least believing, that we were following Nature . . . every method or available means that could be thought of were brought into request to secure the germination of the seed. It was sown upon blocks of wood, pieces of tree-fern stems, strips of cork, upon the moss that surfaced the pots of the growing plants; in fact, in any situation that seemed to promise favourable results. But, as it was in the early days of Orchid hybridisation, so it is now. We seem as far off as ever from hitting upon a method by which at least a moderate amount of success may be calculated upon. Failures are innumerable." This was written in 1885, and Mr. VEITCH is good enough to inform us that he has no additions or alterations to suggest to the paper alluded to, but that the truth of the observations then recorded has been amply confirmed by subsequent experience.

* *Journ. Hort. Soc.*, the Report on the Orchid Conference, 1895, p. 24.



VIEW IN THE CENTRAL DRIVE, ROYAL BOTANIC GARDEN, PERADENIYA, CEYLON.

[illegible]

ROYAL HORTICULTURAL SOCIETY.—In order not to clash with the Richmond Show, Professor HENSLOW's lecture at Chiswick, announced for Wednesday, June 27, will be given on Tuesday, June 26, instead.

THE ROYAL HORTICULTURAL SOCIETY AT RICHMOND.—We would remind our readers that the Royal Horticultural Society's committees will meet on Wednesday next at Richmond, Surrey, in connection with the annual horticultural show held in this very pretty suburban town. The Royal Horticultural Society's committees will sit for the same purposes as at the Drill Hall, and any novelties may be put up for Certificates. There will be one tent set apart exclusively for exhibits entered under the auspices of the Royal Horticultural Society, the dimensions of which are 210 feet by 50 feet. There will be a luncheon, as usual, at 1.30 P.M., to which invitations are extended to all of the members of the visiting committees. We are asked to state that the Royal Horticultural Society's committees will meet at 11.30 A.M., not 12 o'clock, and members will be required to sign their names in the attendance books at the entrance.

SWEET PEA BICENTENARY.—Mr. S. B. DICKS, of 7, Howard Road, Anerley, S.E., having, as he informs us, accepted the invitation of the Committee of the Sweet Pea Bicentenary, to prepare a paper on the early history of the Sweet Pea down to the time of ECKFORD, would be much obliged by any of our readers possessing catalogues published between 1700 and 1793, kindly sending copies of any entry regarding Sweet Peas which such catalogues may contain.

HARDY FRUIT FOR THE GREAT NORTH-WEST.—We learn from the Agricultural Department at Ottawa that the persistent efforts which have been made for some years past to procure useful fruits sufficiently hardy to endure the climate of the Canadian Great North-west have now reached a very interesting stage. Thirty-six of the new crosses between the Siberian Crab and some of the larger cultivated Apples have borne fruit during the past season, and on five of these the fruit was of such quality as to warrant propagation for extended trial. Arrangements have been made to send out a limited number of the new sorts to be tested under different conditions, and at widely distant points, in the North-West country, so that the fullest information may be had as early as possible. The results already attained would appear to justify the hope that this special line of experimental work in plant-breeding will prove of much value.

COLOURED-LEAFED ANTHURIUM.—Messrs. SANDER & Co. send us an Anthurium in which the stalk of the spathe, and the petiole of the leaf, are united all the way up to the base of the spadix. The spathe is reddish and puckered, as in *A. Andreanum*, and the base of the leaf has assumed the same colour, whilst the central and upper portions are green. The central portion of the leaf was originally scarlet; but as the seeds ripened, the red colour diminished.

MR. FOAKES, HEAD-GARDENER AT IWERNE MINSTER.—Some of Mr. FOAKES' friends would have been surprised on reading an advertisement in our last issue, p. xi., to learn that he was leaving that place and wished to obtain another situation where four or more men were kept. It appears that this was all a mistake, and it applies to Mr. FOAKES' foreman, who is leaving Iwerne, and who hoped, by advertising in our pages, to meet with a head-gardener's situation.

YORKSHIRE NATURALISTS' UNION.—We learn from a circular issued by the hon. secretaries of this important association, Messrs. W. DENISON, ROEBUCK, and EDWIN HAWKESWORTH, that the 152nd meeting will be held at Crosland Hall, near Huddersfield, for the investigation of Drop Clough, Blackmoorfoot, Wessenden Valley, Ford Valley,

Harden Clough, and neighbourhood, on Thursday, June 28, 1900. The president invites the members and associates participating in this excursion to take tea with him at Crosland Hall. Crosland Hall is close by Healey House Station, L. & Y. Railway, Meltham Branch. Mr. T. W. WOODHEAD, F.L.S., writes that the district covered by the ramble contains Oak, Birch, Pine, and mixed woodlands, hilly pastures, moorlands, cloughs, and high open moor. It is not rich botanically, lying as it does entirely on the Millstone Grits, with vast tracts covered by peat. Much of the ground rises from 600 to 1,600 feet or more, and considering the lateness of the season and early date of the ramble, many of the characteristic plants will not be in flower. The following are the more interesting species occurring here:—*Hypericum androsaemum*, *Genista anglica*, *Rubus flammula*, *R. pulcherrimus*, *R. Lindebergi*, *R. villicaulis* v. *Selmeri*, *R. Sprengeli*, *R. leucostachys*, *R. chamaemorus*, *Drosera rotundifolia*, *Hydrocotyle Myrrhis*, *Ceanothus crocata*, *Heracleum sphondylium* var. *angustifolium*, *Valeriana dioica*, *Hieracium argenteum*, *H. sciophilum*, *Wahlenbergia hederacea*, *Vaccinium vitis-idaea*, *Schollera oococcinea*, *Andromeda polifolia*, *Pyrola minor*, *Pinguicula vulgaris*, *Scutellaria minor*, *Plantago media*, *Empetrum nigrum*, *Narthecium ossifragum*, *Asplenium viride*, *A. ruta-muraria*, *Phegopteris dryopteris*, *P. polypodioides*, *Ophioglossum vulgatum*, *Botrychium lunaria*. *Mosses.*—The following are the more interesting mosses to be met with in this district:—*Sphagnum acutifolium*, *S. squarrosum*, *S. intermedium*, *S. subsecundum*, *Dicladontium pallidum*, *Dicranella squarrosa*, *Phaenium bryoides*, *Didymodon rubellus*, *Racomitrium heterostichum*, *Philonotis fontana*, *Bryum pseudo-triquetrum*, *Tetradontium Brownianum*, *Hycomium flagellare*, *Hypnum vernicosum*, *H. ochraceum*, *Hylocomium loreum*, and *H. squarrosum*. *Fungi.*—Mr. ALFRED CLARKE writes that the districts to be visited being principally moorland areas, are not prolific in fungi. The wood near Harden Clough has yielded a few specimens of *Hydnum repandum* and *Tricholoma rutilans*, in addition to the commoner species of *Amanita*, viz., *A. rufescens*, *A. pantherina*, and *Amanitopsis vaginata*, but the season is not sufficiently advanced for finding many of the larger species.

SWEET PEAS IN POTS.—Much prettier than the bunches of Sweet Peas usually shown at exhibitions, was a group of plants in pots, which Mr. H. J. JONES, Ryecroft Nurseries, Lewisham, displayed at the Drill Hall, Westminster, on Tuesday. Sweet Peas can very easily be grown in pots, and they make very decorative plants when so cultivated.

HYBRID EREMURUS.—We had occasion a fortnight ago to remark upon a very unusual exhibit of *Eremurus*, made at the Drill Hall, by Messrs. JAS. VEITCH & SONS. On Tuesday last, although there was no such imposing group, there were two new *Eremurus* exhibited, which it is considered will prove to be natural hybrids. One of these, under the name of *E. Warei*, was given an Award of Merit by the Floral Committee. The other was shown by Messrs. VEITCH.

PETROLEUM EMULSION.—Make a smooth mixture with twenty-four parts of liquid paraffin, B.P., six of powdered gum Acacia, two of powdered gum tragacanth, and two of tincture of quillais; then add, all at once, sixteen parts of water, and rub together until the emulsion is formed.

FRUIT-GROWING IN DROGHEDA.—Under the auspices of the Irish Agricultural Organisation Society, the question of the most suitable centres for fruit cultivation in Ireland has been considered. The result of their investigations in the district of Drogheda is highly satisfactory. They have found the soil to consist largely of a deep, rich loam, and the town and its environs are in close proximity to the sea, owing to which circumstance cultivators would be able to make use of seaweed as a manure,

and obtain plenty of sand to lighten the heavier soils. The gardens at present in this locality range from $\frac{1}{2}$ acre to 3 acres; in some few cases there are large tracts under cultivation—but this is the exception. The method of culture in vogue is said to be not of a very high standard, but is, nevertheless, "rough but profitable." Contributory causes are bad pruning, injudicious digging, and lack of modern implements.

EXHIBITING FRUITS AND FLOWERS TOGETHER.—At the meeting of the Fruit Committee held at the Drill Hall on Tuesday last, we understand, that body was invited to express an opinion as to the desirability of the conjunction of flowers with collections of fruit placed before it. It was unanimously resolved "That in future foliage only be permitted to be used in the decoration of collections of fruit placed before the committee." The primary reason given for this resolution is that whilst foliage does not, by reason of its neutral tints, detract from the rich hues found in fruit, flowers very materially do so. The matter arose out of the very fine collection of fruit shown by Lord LOCKINGE. The committee at the same time expressed high commendation at the method of showing Grapes adopted in that exhibit, viz., on boards fitted on small easels, which elevated them above the other fruit.

EXPLORATION IN ARIZONA.—According to Laffan, the most important scientific expedition proposed in the United States for many years is now being organised, under the direction of Prof. BEECHER, who occupies the Chair of Historical Geology at Yale University, and presides over the Peabody Museum of Natural History. The object of the expedition is to make an exhaustive exploration of the petrified forests of Arizona and the Grand Canyon of Colorado in quest of geological specimens. Prof. BEECHER has the co-operation of six other eminent geologists in arranging the expedition, which, according to present arrangements, will start in August.

OBSERVATIONS ON AMERICAN BLIGHT.—For the frequently remarked sudden appearance of the American-blight aphid in July on Apple-trees, hitherto quite free of the insects, the following reasons are given by M. R. THIELE in an advance communication of the *Zeitschrift für Pflanzenkrankheiten*, vol. ix., 1899, part v.:—"In June, according to the temperature, and also in July, there appear in the colonies of wingless insects first nymphs, and in about twelve days later, winged females on perfectly calm days may be observed flying about in white flocks. These females are incapable of producing either male or female young, but progeny (fifteen to twenty individuals) of already impregnated females, furnished with sucking proboscis, which are capable of establishing new colonies, as has been determined by settling them on isolated pot fruit-trees."

ERRATIC ORCHIDS.—Messrs. HUGH LOW & Co. send various malformed *Cattleyas*. The simplest case is one in which the parts of the flower are in whorls of two, two sepals antero-posterior, two petals at right angles, no lip, and a single column with the anther at the top. This condition is very common in Orchids, and Messrs. H. Low sends us no fewer than five flowers of *C. Mendeli* in this state. Another flower of *C. Mossii* shows two lateral sepals and one petal placed at the back of the flower, the other lateral petal being absent. The lip and column are normal.

POST-OFFICE DISORGANISATION.—We have no doubt but many of our readers have experienced some annoyance during the past week owing to delay having occurred in respect to the delivery of letters and papers that have had to pass through the London Post-office. It appears that all this inconvenience has been caused by the authorities transferring part of the work that has hitherto been done at St. Martine-le-Grand office to a newer

one at Mount Pleasant. It is reported that tons of letters and papers lie mixed together waiting to be dealt with, and at present the staff is hardly more than able to cope with the current work, leaving but little time for the working up of arrears. We hope some means will be found to speedily end this state of affairs, for the efficiency of the Post-office in the past has been so perfect, we have come to look upon the regular and prompt delivery of our letters and newspapers as certain to be done, as the seasons are to succeed each other. In the event of our readers not receiving the *Gardeners' Chronicle* at the usual time this week, the above explanation will help them to put the blame upon the right shoulders. Our publishing department is powerless in the face of such obstacles.

PUBLICATIONS RECEIVED.—*Botanischer Lager Katalog*, Von Oswald Meigels Antiquarium, Leipzig, Königstrasse, No. 1. Three separate catalogues, new editions, viz., No. 95: Phanerogamæ, Geographia Plantarum, Floræ; No. 96: Annales et Acta, Scripta Miscellanea, Botanica historica, Generalis et systematica, Anatomia et Physiologia Plantarum, Plantæ fossiles; No. 97: Cryptogamæ, Algæ, Lichenes, Fungi, Musci frondosæ et Hepaticæ.—*Bulletin de l'Association pour la Protection des Plantes*, Geneva; W. Kundig et Fils, Vieux-College, 4.—*Kew Bulletin*, Appendix III, 1900.—*Catalogue of the Library*, Additions received during 1899. Eyre & Spottiswoode, East Harding Street, Fleet Street, E.C. Price 4d.—*West Indian Bulletin*, Vol. I., No. 8. Journal of the Imperial Agricultural Department for the West Indies. Contents: Teaching Agriculture in High Schools, Colleges, and Elementary Schools, Food Crops, Bee-keeping, Diseases of Plants, &c. Messrs. Dulau & Co., 37, Soho Square, London, W. Price 3d.

KEW NOTES.

KALANCHOË BENTII, n. sp.—This new and interesting species of *Kalanchoë* is in flower in the Succulent-house at Kew. It was collected in the Hadrament in 1894, by the late M. Theodore Bent, who described it as a *Crassula* with opposite cylindrical leaves. At Kew it has formed an unbranched stem 3 feet high, and nearly an inch in diameter, bearing near the top six pairs of decussately arranged leaves, from 3 to 6 inches long, sub-cylindrical, rigid, narrowed gradually to an acute point. Flowers white, in an erect loose panicle, 8 inches long, by 5 inches wide, calyx of four fleshy spreading lobes; corolla $1\frac{1}{2}$ inch long, inflated at the base and distinctly four-angled, the apex divided into four lobes, forming a limb nearly an inch across. It is the largest flowered of all known *Kalanchoës*. A description and figure of it will shortly be published in the *Botanical Magazine*.

PEONIA LUTEA.

A plant of this new introduction from China may now be seen in flower in the Himalayan-house at Kew. It may be described as a Tree *Pæony* with the habit and foliage of *P. Moutan*, and cupped flowers, 3 to 4 inches across, of the same colour as, and not unlike a flower of *Nuphar lutea*. It was first brought into notice by Professor Max Cornu, to whom Kew is indebted for the plant now in flower, and who exhibited a flowering example at a meeting of the Société Nationale d'Horticulture de France in 1892, having raised it from seeds collected in Yunnan by l'Abbé Delavay. It was then described as "a small-flowered species of no ornamental value, but interesting from the unique colour of its flowers, and the possible influence it may exert in the creation of a new race of yellow-flowered garden *Pæonies*." Judged by the Kew plant, I should say this description underrates the species as a garden plant. It is possible also that it may be the wild progenitor of *P. Moutan*, which is only known in China as a cultivated plant. A figure of the Kew example will shortly be published in the *Botanical Magazine*. W. W.

CRATÆGUS FLAVA.

The illustration (fig. 131) accompanying these notes is a copy of Lindley's figure in the *Botanical Register*, t. 1939. The same plant is figured in Watson's *Dendrologia Britannica*, i, t. 59, under

the name of *Mespilus flava*, and the latter figure was prepared in the Kew arboretum in 1821. But neither at Kew nor in other living collections have I succeeded in finding this species. In the Kew herbarium there are cultivated specimens in Bishop Goodenough's herbarium (1781), and also others

from cultivation, and it is in the hopes that the publication of this figure and these notes may serve to discover living trees, and to elicit information respecting so interesting a species. Seemingly the only wild specimens in any herbarium are those collected by Rugel near Tallahassee, in Florida, some sixty



FIG. 131.—*CRATÆGUS FLAVA*. (FROM THE "BOTANICAL REGISTER.")

from the Horticultural Society's Gardens (1838). In the British Museum the same plant is represented by material from the Chelsea Botanic Garden. Professor C. S. Sargent writes that in the Gray Herbarium there are specimens gathered by Dr. Asa Gray—presumably about 1840—both at Kew and in the Paris garden. It seems strange that a plant which apparently was not uncommon about half a century ago should have disappeared

years ago. Professor Sargent believes it to be impossible that the plants cultivated in England during the last century should have come from Tallahassee, which was at that time a wilderness, beyond the reach of any botanist or plant collector; so evidently the plant must exist in a wild state elsewhere in the United States—but it is remarkable that no American botanist knows anything about it, and that only Rugel has collected it.

If tree-lovers would preserve good specimens, as complete as possible, of all the different American Thorns they may possess, there would be a chance of setting right the tangled synonymy of this very difficult genus, and also of ascertaining with certainty what species really are in cultivation. The specimens could be sent me under numbers, so that the corrected names would be definitely fixed.
Geo. Nicholson, Royal Gardens, Kew.

Mr. Miller stating the judges were placed "in a ridiculous position, dancing backward and forward in front of the stand." Mr. Owen Thomas, Mr. Crump, and Mr. McHattie, are gentlemen of the highest standing as judges, and would be the first rightly to resent being placed in any false position. Instead of the curious statement of Mr. Miller, they were so much interested in the awards that I am sure they would willingly have stayed another hour to bring their judging to a successful issue.

VERBASCUM THAPSUS.—This woolly-leaved, native plant is said to be rare in some districts. It is a very common plant in the grounds here, and wherever the surface has been excavated or disturbed it comes up in great abundance, and grows to the height of from 4 to 5 feet. It is an ornamental plant in all stages of its growth, and is well worth cultivating in the wild garden, or by the sides of woodland walks. *A. Pettigrew, Castle Gardens, Cardiff.*



FIG. 132.—HARDY AZALEAS, AS EXHIBITED AT THE TEMPLE SHOW BY MESSRS. R. AND G. CUTHBERT.

(See p. 4 of Supplement, *Gardeners' Chronicle*, May 26.)

HOME CORRESPONDENCE.

THE SHROPSHIRE HORTICULTURAL SOCIETY.—Mr. Miller's letter, on p. 388, may lead to mistakes. There is no deviation from the schedule in the slightest degree. The collections of fruit will be decorated with non-flowering plants and cut flowers; the fruit being judged simply as fruit; and to the plants and cut flowers will be given special prizes for decoration, really two competitions in one class. The result of introducing floral decoration in the Grape class last year was so highly spoken of by the horticultural press, gardeners, and general public, that it appears somewhat late in the day to raise such a simple objection, because classes are provided for plants and cut flowers, no attempt should be made to make other exhibits attractive. I can assure Mr. Miller the decorative part of the Grape class was soon judged, the great difficulty being in judging the Grapes, and hence I protest strongly against

Although the judging of the Grape class was not finished at the time announced for the opening of all the tents, the fruit tent was, with the full permission of the judges, opened with the others immediately the clock struck the hour, and not the slightest inconvenience to the judges was caused. Mr. Miller, commending the table decoration class, is strangely at fault in stating the "gold or silver dinner service," &c., was everything that could be desired. Under the regulations, not even modest electro-plate can be placed on the tables, much less the worthy exhibitor's gold and silver dinner service. Surely exhibitors depend on their fruit and floral exhibits for success, not on costly plate. Mr. Miller should be consistent, for in this class commended by him, the "ridiculous case of putting Pelion on Ossa" is further carried out, for three sets of points are given, in addition to the points for fruit. *H. W. Adnutt.* [Our review of the schedule for the forthcoming show at Shrewsbury was published in *Gard. Chron.*, March 17, p. 169. ED.]

HERBACEOUS CALCEOLARIAS.—Those who wish to have success with these beautiful plants should make two sowings of seed, one at this date, and another about three weeks later. Sowing Calceolaria-seed is a ticklish operation, and any inattention to details, in themselves apparently trivial, leads to failure more or less. In the first place, cool treatment is most essential; and the best place for the seed-pots is a light frame, set on a floor of moist coal-ashes on the northern side of a high wall. Let the seed be sown in 48's, or in small shallow pans, well drained, and filled to within $\frac{1}{4}$ -inch of the rim with a mixture of light loam, leaf-mould, and sand, pressing it firmly before sowing the seed. Scatter the seed thinly, and sprinkle some fine soil or sharp sand over it, so that it is not visible. The seed-pans, &c., should be lightly afforded water ten minutes previous to sowing. Finally place a sheet of glass over each pan, and apply no more water till germination has taken place. Keep the outsides of the pans

and coal-ashes moist, and there will be no need to apply water to the soil. The sheets of glass must be tilted when the plants appear, and water may be applied if the surface be dry. After a time, the pans may be stood in a handlight or frame, always avoiding dryness of the air. No time may be lost in transplanting the seedlings when large enough to other shallow pans, taking care in doing this not to injure the stems or leaves. The larger plants should be pricked-out first, and the remainder left to grow stronger, and the holes made in extracting the seedlings filled up with soil. The after-treatment is simple, and consists in potting them when large enough, using a similar but a little coarser kind of soil to that in the seed-pans. Let the plants continue to stand on damp coal-ashes, and never allow the soil to get very dry. As green-fly has a great liking for this plant, XL-All or other agent must be used to kill that pest. The plants will winter in small 48's or large 60's; but to flower them well they must be potted into 32's and 24's, and some growers pot finally in November. The best sort of soil at that time is loam that has been out and stacked a year; Mushroom-manure or leaf-soil, and plenty of grit or coarse sand. If very large plants are required, re-potting may be performed at the end of the month of March. A cool greenhouse will grow fine plants, no more fire-heat being used than will give a temperature of 45°. *H. Markham, Wrotham Park, High Barnet.*

SENECIO SQUALIDUS AND S. VULGARIS RADICATUS AT CARDIFF.—*S. squalidus* is a very pretty Ragwort which has established itself in this district within the last five years. The plant was not found growing anywhere in the neighbourhood of Cardiff until after Lord Bute began excavating in the Castle grounds, on the site of the Grey Friars Monastery, in search of the foundations of the church of that name. The first plant made its appearance the following spring, on the side of a large heap of debris which was thrown up from a depth of 3 feet under the surface. It flowered during the summer, and ripened seed, which owing to its downy nature, was wafted by the wind to a great distance in all directions, and now it has become a common plant, growing in great profusion on old buildings, waste-heaps, and railway embankments, for miles around Cardiff. *Senecio vulgaris radicans* is a variety of the common Groundsel, which made its appearance about the same time as *S. squalidus*, and it, too, is now a common plant everywhere in this district. *A. Pettigrew, Cardiff.*

EARLY FRUITING STRAWBERRIES GROWN AS ANNUALS.—Strawberries this year are later than in some previous years by some days. We began at Syon to gather fruit for the table on the 15th inst., which is ten days later than usual. This gathering was from plants of Royal Sovereign growing on a south border. To be enabled to gather ripe fruits at the earliest date, I put out the plants in July of the previous year, and select a warm situation for the bed. This early planting has, during the last two summers, caused a considerable amount of labour to be expended on their cultivation, water having to be copiously applied. It will be understood that the runners were obtained from plants that were not allowed to flower, and they were in consequence very strong; and layering was performed much earlier than would otherwise be the case if a crop of fruit was allowed to ripen first. The result of all this expenditure of time and labour is early crops of fine fruits; and for market purposes I am quite sure that it would pay the grower. There are however a few drawbacks in some seasons, for take this year, as an example, we had very sharp frosts in May, when the plants were in bloom, which cut off the earliest and strongest flowers; but by affording protection in time, a goodly number were saved, and these are now (June 18) affording excellent table fruit. So far as regards earliness, and size of fruits, these plants are far superior to two-year-old ones, and the extra labour is not misapplied. On soils not well adapted for Strawberry culture, it is certainly the best method of cultivation. The loss of plants in beds usually occurs in the second year, but by treating the plant as an annual this loss is avoided. Most gardeners know that every variety cannot be grown under these conditions, but the stronger growers can be, and so far I have found none superior to Royal Sovereign. We have had several earlier fruits from smaller fruiting varieties, but they cannot compare with Royal Sovereign, which is carrying

a full crop, and there are but few small fruits. There is another point worth noting, which is that Strawberries grown as annuals may be planted much closer together than others differently treated, and if it be desired to fruit them another year they will produce a large crop of fruit, but they are smaller. Any objection on the score of labour may be met by adopting a simple plan, which needs, however, a much longer time, viz., by taking late runners and planting them in rows in late autumn, and planting them in their permanent quarters the next spring. Such plants must not be allowed to bear flowers, but be afforded a season's growth instead. Plants thus treated produce grand early crops the next year, but the plants cannot be termed annuals. The practice has much to recommend it when the land is of good quality, and labour not abundant—much of the work being done at the slack season. In light, thin soils, resting on gravel, much better results are obtained from yearling plants. *G. Wythes.* [Some fruits of Royal Sovereign sent with this communication fully bore out the writer's contention. Ed.]

ACALYPHA HISPIDA (SANDERIANA).—Replying to Mr. A. Taylor's question, as to the right sort of cultivation for this plant, I may state that I have grown it successfully by propagating it early from cuttings placed in a bottom heat of 80°; and potting them off as soon as well rooted in a compost consisting of loam 3, leaf-soil, dry cow-manure, and a dash of sharp sand 1, well mixed together. Stove heat suits the plants admirably, a slight amount of shading being applied during the hottest part of the day. It requires plenty of light syringing, and liberal applications of water at the root, as well as occasionally some mild liquid manure. As the catkins develop, great care should be taken not to let them get too damp; therefore, syringing must be omitted at that time. This species makes a decorative plant, and it may be gradually brought into a cooler house when in flower—say one having an intermediate temperature. *H. Hawkins, Bishop's Stortford.*

BROOM AND GOOSEBERRY-CATERPILLAR.—There is an idea that twigs of the common Broom (*Cytisus scoparius*), stuck into Gooseberry-bushes attacked by the sawfly caterpillar expel these pests. A friend of mine tells me that his gardener tried this remedy on his infested bushes, to the effect that next morning not a single caterpillar could be found on them. Is this a recognised method? If so, what is there about the Broom that makes it act thus? Or is the effect capable of some other explanation? *J. P.*

A PINK HAWTHORN REVERTING TO WHITE.—A large single pink-flowered Hawthorn, growing in the garden here, has this June exhibited in its blossom a striking instance of bud-variation. Last year one tuft of flowers (inflorescence) was noticed to be white. The twig bearing this was marked. This season a whole branch adjoining has borne white flowers too. In addition to this, I have counted about twenty other single tufts of bloom with white flowers scattered over the tree; also one tuft was discovered carrying, besides several pink flowers, one white flower and one particularly coloured, viz., with two of its petals pink, two white, and the remaining one with the pink and white evenly divided. The coloration of the pink flowers was not uniform in tint throughout the tree; some were deep crimson, others light pink, while others still were intermediate in shade. Again, many of the white flowers had just a blush of colour in them, quite distinct from the reddish-tinge which the fading flowers of the common Hawthorn often assumes. Darwin, in his *Animals and Plants under Domestication*, vol. i., p. 402, mentions two cases of coloured Thorns showing this kind of bud-variation. Perhaps, in reality, they are fairly common. I am told that the Hawthorn now described has shown this peculiarity in former years; however, it only came under my notice last season. It will be interesting to watch its behaviour in the future. *J. P., Blaithwaite, Carlisle.*

RECENT HOT WEATHER.—On June 11 my thermometer registered a temperature of 92½° Fahr. in the shade, this being slightly the highest June record which I have taken. It is interesting to observe that such unusually hot weather, when it occurs before midsummer, is frequently followed by destructive hailstorms. In this case much

damage from hail has been reported in the papers, although not in this immediate district. The only previous record of such a hot day in June within my own experience was June 24, 1897, which was followed (on that very day, I think) by a hailstorm of an unparalleled nature in Essex. *A. Worley, Isleworth.*

THE ROYAL HORTICULTURAL SOCIETY'S PROPOSED BYE-LAWS.—At length the Council of the Royal Horticultural Society has issued copies of the proposed new bye-laws to the Fellows, and still further, has arranged for the holding of a special meeting at the Drill Hall in conjunction with the next meeting there on July 3 to consider their adoption. So far nothing can be wiser or more satisfactory. There is so much in the proposed bye-laws that is non-contentious, that it will save much time when the meeting is held if all those clauses or sections not open to discussion be taken as agreed to, discussion being concentrated only on such words, sentences, or clauses as shall raise divergent opinions. To me, the primary contentious matters are to be found in, first, somewhat invidious sexual distinctions, in relation to fellowship; and second in the proposed proxy voting. In relation to the question of sex, here and there, though not very often, the male gender is introduced and needlessly in referring to Fellows, their privileges and responsibilities. Nothing would be easier so to alter the words as to render the case of genders of this nature quite unnecessary. It does seem so very absurd, having regard to the fact that many hundreds of ladies are Fellows, and profoundly interested and valuable Fellows too, to set up these sexual distinctions, especially where such reference becomes purely verbiage. But whilst there is in Clause 2 a note explaining that the male includes the female gender, we get in this practically an admission that the clauses which include personal reference are badly drafted, and could with a little care have rendered such saving clause needless. But clause 10 seems to contain that which is in relation to women offensive. If a woman is fitted to become a Fellow (and no one can say anything to the contrary), why is she not also fitted to become an elected member of the Council, or appointed to any office under the Council? Naturally, if a lady Fellow wished to be so elected, and a majority of the Fellows held that placing her in that position would be advantageous to the Society, is it not manifestly foolish to prevent so much being accomplished? Is that arrogant being, man, afraid to have an intelligent woman sitting with him on the Council? If women are good gardeners and Fellows, they can also make good members of the Council or officers. I hope, therefore, the Fellows in general meeting will sweep away all the proposed sexual distinctions and references from the bye-laws. The proxy voting clauses, 45, 46, 47, present grave reasons for disapproval. They place in the hands of the chairman of any general meeting a power that is quite autocratic; indeed, the chairman may by their aid at any time treat an adverse vote with contempt, flout the whole body of Fellows present at such meeting, and passing over any such vote that it may be dealt with by a referendum, which would mean practically leaving decisions on matters of the first importance to the mass of Fellows who care nothing whatever about the Society's business or management. I trust the Council does not look to these proxy voting clauses to enable them to deal with such important and most contentious questions as the provision of a horticultural hall or a new Chiswick. It may be easier to raise a Frankenstein than to ally one. The principle of proxy voting is absolutely wrong and vicious. It flings responsibility to the winds by placing it on the shoulders of the unconcerned, and flouts the judgment of those, possibly fewer, but by far most interested Fellows. *A Fellow.*

PLEUROCARPELLARY PISTILS IN PRUNUS.—The note on p. 384 reminds me that *Prunus triloba*, the beautiful semi-double flowered Plum, now and then produces insipient pleurocarpellary fruits. I saw an Orange or Lemon-tree the other day in a friend's greenhouse bearing one partially pleurocarpellary fruit (i.e., Finger Orange), amongst others of the normal kind. *F. W. B.*

WELLINGTONIAS.—In your interesting account of Wreath Park and the trees there, you mention a specimen of *Sequoia gigantea*. We have several

fine Sequoias in the pleasure-grounds here. Our best specimen, when measured three years ago, was 95 feet in height. I have to-day again measured the girth at the ground-line, and at 5 ft. from the ground, girth at ground level is 25 feet 10 inches; at 5 feet from ground level 16 feet; spread of branches north to south 36 feet; east to west 35 feet 9 inches. The soil where the two largest are growing is a red sandy loam on clay. We have many good specimen Conifers; a tree of *Abies grandis*, over 85 feet; *Pinus excolsa* and *P. insignis*, over 70 feet; *Picea nobilis glauca*, over 70 feet in height, and well furnished to the ground; also good *Araucarias* in luxuriant health. *T. H. Slade, Poltimore Park, Exeter.*

AN OVERTURNED GEAN-TREE AT BELVOIR CASTLE.

MUCH of the charm of that creation of the late William Ingram, the Spring Garden, consists in its sylvan surroundings, and the extensive collection of choice evergreens, and the deciduous and flowering trees and shrubs, with which the various scenes are enriched.

The wild Cherry or Gean is one of these, and not the least valued for its profuse masses of white flowers. The tree, of which we give an illustration (fig. 133), was like most trees growing in close woods, rather top-heavy, and its bare trunk was draped with a heavy mass of Ivy, making it an easy victim to a gale of wind in the early nineties. The fall of the Gean was arrested by an Oak, which itself died from drought in the hot summer of 1895. The two formed a pointed arch over the woodland path in the "Duchess' Garden." The photograph from which our illustration was prepared, was kindly supplied by Mr. W. H. Divers, the present head gardener at Belvoir.

ALPINE GARDEN.

ALYSSUM CORYMBOSUM.

INCLUDED in the Alyssums are many very attractive plants for garden decoration, as well as a number of more interest to those who can appreciate more minute flowers, such as give pleasure to the grower of alpinees. A small collection of Alyssums gives considerable variety in a garden, although the prevailing colours are yellow or white. There is a great dissimilarity in their habit, and they give plants suitable for several positions. Among some new plants received from Darmstadt last autumn was one named *A. corymbosum*, a species described by Boissier. It stood the winter in the open ground, and also a subsequent removal to its permanent quarters on a knoll in the rock-garden. It came into bloom in May, and promises to keep in flower for some time yet. Although I should not like to say that it is to be included among the best of the yellow-flowered Alyssums, it is yet a pretty plant, and one which may fill a useful place in our gardens.

In the light soil and the dry position it occupies, it can hardly be expected to develop its full height—a consummation not always to be desired in the rock-garden. It is, however, nearly 18 inches high, a stature which is quite high enough for my purpose. In common with many of the genus, it has greyish-green leaves, not quite so hoary as those of *A. saxatile*. The flowers, which are small and bright yellow, are produced in corymbs, and a stem with its elongated corymbs must produce some hundreds of small flowers in succession. The plant looks very well in its present position, and I shall be glad if it prove to be perennial in its habit, although from its appearance I am inclined to fear that it may be only a biennial. It will, however, be likely to seed freely, and so to keep up a succession of plants. It may be commended to the notice of those who are interested in the Alyssums.

CAMPANULA LINGULATA.

Under this name I received last year a plant which purports to be *C. lingulata*, of Waldstein & Kitaibel—a *Campanula* which is included in the *Kew Hand-list*, but does not appear to be generally offered to the public. It was wintered in the open, and withstood a somewhat trying winter and spring with immunity from any serious injury. It came early into bud, and gave every appearance of being an unusually early bloomer. This was a little deceptive, as it remained long in the same condition, and did not come into flower until May was considerably advanced. It has now a good display of flowers, and one is not disposed to regret having purchased it, as it is unlike any other member of the genus in my collection. At first it looked as if it would remain of a neat, dwarf, tufted habit; but after producing flowers at about 6 inches high it has sent up several stems, one of which is 17 inches high. These flowers are of a shape which reminds me of a narrowed and elongated



FIG. 133.—AN OVERTURNED GEAN-TREE IN THE PLEASURE-GROUNDS, BELVOIR CASTLE, GRANTHAM.

C. Portenschlagiana with a touch more of purple in the colouring. The flowers are very numerous, and my solitary plant has at present thirty-nine fully open flowers upon it, and a still larger number of buds yet to open. The form of the leaves is fairly well described by the specific name of the plant. They are rather hairy or bristly, and the flower-stems and stalks are similarly characterised. I am growing this *Campanula* on a flat ridge of the rock garden, and in a position where it is partially shaded from the full sun. The flowers thus keep longer in condition.

AQUILEGIA BAIKALENSIS.

The possession of this pretty little *Aquilegia* I owe to Herr Max Leichtlin, and its flowering this spring was looked forward to with much interest. It is imprudent to judge of the flowering time of a plant from its first season after importation, but it may be said that it was the first of the Columbines to appear in bloom in my garden this year. On its first coming into flower I felt some disappointment with it, but this feeling was considerably modified, if not altogether removed, by the opening of succeeding flowers, and by the improvement a few days

made in the appearance of the first bloom. It is emphatically a flower for the rookery rather than for the border, its dwarf habit and the somewhat quiet colouring of its flowers being more adapted for that phase of gardening. It reminds me to some extent of the larger and prettier *A. alpina*, yet it can hardly be said to resemble it in any marked degree. Its colours are a pleasing combination of blue, white, and green. It is now out of flower, and has only reached, including the seed-vessel, a height of 10½ inches. It is not easy for a new aspirant among the Columbines to make its way, but this one will prove useful and acceptable, should it retain the characters it has shown here this season. This *Aquilegia* does not appear in the *Index Kewensis*, and I am not aware upon whose authority it has been given its specific name.

ASARUM PROBOSCIDEUM.

Asarums are plants more, perhaps, for lovers of the curious, than for those whose sole canon of the usefulness of a flower lies in its bright colouring. To the latter such a plant as *Asarum proboscideum* is devoid of attraction. It is, however, a very singular plant, and is the most distinct of the genus with which I am acquainted. I had not had the pleasure of seeing it until a week or so ago, when I came across it in the garden of Mr. J. H. Wood, of Woodville, Kirkstall, Leeds. I think it is in the *Kew* collection, but it does not appear in the last published "Hand-List of Herbaceous Plants." It is, I believe, an Italian plant, and is curiously beautiful with its neat leaves and its singular black and white flowers. The noteworthy feature of the latter is the manner in which the calyx lobes are prolonged so as to form a filamentous tentacle-like "proboscis." This is much more pronounced than is the case with the curious North American *A. caudatum*, a singular species also, which is not often seen. At Woodville, the best plants were grown in pots plunged in a moist, shady position. It is an *Asarum* which I am glad to possess, and I trust it will be amenable to being grown in a damp and shady position in the rock-garden. *S. Arnott, Carnethorn-by-Dumfries, N.B.*

COLONIAL NOTES.

REPORT OF THE SUPERINTENDENT OF THE BOTANICAL AND AFFORESTATION DEPARTMENT, HONG-KONG, FOR 1899.

WE extract the following from the report by Mr. Chas. Ford, Superintendent of the Botanical and Afforestation Department:

Exhaustive experiments were made with Jadoo fibre (and liquid), which had been highly recommended as a substance in which plants may be grown either entirely, or mixed with the usual composts; but the results do not offer any encouragement to continue its use for any purpose whatever.

Rhodolia Championi, Hook.—This very rare tree was supposed until 1894 to be represented by only four trees, which grew in the Happy Valley; but in that year Mr. Tatcher found several other small trees of it on the opposite—the southern—side of the hill on which they grew; and now he has recently discovered quite a large number, about 100 of various size, ranging down to small seedlings, not far away from the same place. In my annual report for last year I mentioned that Dr. A. Henry had found the same tree in Yunnan.

Plant Sales.—Two thousand eight hundred and ten plants were sold, and they realised 626 60 dols. only, a very slight reduction on the previous year's sales, although the sale of plants to places outside the colony was discontinued. Orders for plants from the coast ports of China and other foreign places had increased so much that it was found necessary in the latter part of the previous year to discontinue supplying plants outside the colony,

otherwise local requirements could not have been met.

Rainfall.—The rainfall in the gardens was 83.91 inches in comparison with 65.99 inches in the previous year. The daily returns are given in Appendix A.

Herbarium and Library.—Dr. Augustine Henry, F.L.S., has presented another fine dried collection of 1,110 species of plants for the herbarium; these were collected in Western China.

Forestry.—Planting to the extent of 54,582 trees has been continued in the island, and Kowloon in ten different localities, and in various new and old roads where trees would thrive.

NEW TERRITORY.

Soon after the new territory was taken over, I commenced a series of journeys, which were continued as occasion allowed, over the whole territory to acquire information on all points in which this department might be called upon to operate in its special functions.

It was found that tree planting was required around the various new police stations and the buildings occupied by Europeans at Taipo, and that tree planting could also be done with advantage in other places. Operations were therefore commenced in October for planting about 80,000 trees during the ensuing year.

His Excellency the Governor when travelling in the territory came to the conclusion after seeing the Sugar-cane growing there, that new varieties of cane might be introduced, and at his Excellency's request I have made arrangements for new varieties to be obtained from different countries, some of which have arrived and been planted near Ha Tsun.

His Excellency also obtained two Chatanooga Sugar Mills, which this department had fixed in the new territory, and exhibited the working of to the sugar-growers there. The advantages these mills possess over the native mills may lead to their extended introduction.

I have also obtained improved varieties of Pine-apple plants from Ceylon, which will be useful introductions to the districts where Pine-apples are now cultivated to a considerable extent. The best fruits from the new territory are now brought over to Hong-Kong, and canned at a factory at West Point.

SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 19.—Now is the reign of the hardy flowers. The present floral richness of the borders and beds in which we cultivate hardy herbaceous perennial species of flowering plants, was reflected at the meeting of the Royal Horticultural Society on Tuesday last in the Drill Hall, Westminster. There were large groups of flowers exceedingly comprehensive in their representativeness, from almost all the southern nurserymen who cultivate these species largely; and although particular flowers were duplicated in the hall, because included in several of the groups, such a show of hardy flowers gave a large amount of pleasure to many of the visitors, whose exclamations to that effect were sufficiently convincing. There were ten awards made by the Floral Committee, nearly all of which were to hardy flowers, including one to a reputed hybrid *Eremurus*.

Another very prominent feature in Tuesday's display, for a display it was, were the Roses, of which quite a number of large exhibits were staged. Hybrid Perpetuals and Teas were shown, especially by Mr. PRINCE, of Oxford, but these were few in number compared with the large collections of the beautiful garden Roses from the two firms of PAUL, Messrs. COOLING & SONS, and Messrs. CANT.

Souvenir de la Malmaison Carnations, from MARTIN R. SMITH, Esq., were magnificent, and a group of specimen plants of *Humea elegans* over a groundwork of miscellaneous species of plants, from Lady PIGOTT, deserves much commendation.

The Orchid Committee recommended the award of a First-class Certificate to a very handsome *Odontoglossum* (*O. Rolfe-Walton Grange* var.), from W. THOMPSON, Esq., Walton Grange, Stone; also an Award of Merit to *Sobralia Veitchii* aurea, from Sir F. WIGAN, Bart.; and a Botanical Certificate

to *Eulophia gracilis*, from A. H. SMEE, Esq., The Grange, Hackbridge.

The Fruit and Vegetable Committee was called upon to adjudge the merit of four new Melons, but neither of these gained an award. There were three Medals awarded by this Committee to collections of fruit.

Floral Committee.

Present: W. Marshall, Esq. (Chairman), and Messrs. Jas. Walker, S. A. de Graff, H. May, R. Dean, G. Bouthie, W. Howe, Jas. Hudson, John Jennings, H. S. Leonard, Chas. E. Pearson, J. D. Pawle, J. T. Bennett-Poe, Chas. E. Shea, Geo. Gordon, Herbert J. Outbush, W. J. James, Geo. Paul, E. T. Cook, C. Blick, Ed. Mawley, Chas. Jeffries, J. W. Barr, J. Fraser, and H. J. Jones.

The largest exhibit at this meeting was that of a group of miscellaneous plants from Lady PIGOTT, Wexham Park, Slough (gr. Mr. Fleming). This group occupied a space of 400 square feet upon the ground floor, and embraced a collection of about thirty plants of *Humea elegans*, some of them 10 feet high; two plants were shown of a white-flowering variety. The groundwork of the group consisted of first-rate zonal Pelargoniums, Carnations, including several of the newer varieties of the Souvenir de la Malmaison type; Ferns, Codium, Cordylines, Caladiums, *Lilium candidum* Harrisii, *Fraxinus* Statice, Palms, &c. (Silver-gilt Flora Medal).

Messrs. JAS. VEITCH & SONS showed a group of plants of the orange-scarlet-flowered *Kalanchoe flammea*, a new plant, figured in *Gardeners Chronicle*, July 15, 1899, p. 47. *Senecio Greyi*, a shrubby New Zealand species with white pubescent leaves, and terminal racemes of yellow flowers; also a representative collection of flowers of their greenhouse Rhododendrons.

Messrs. J. VEITCH & SONS, The Royal Exotic Nursery, Chelsea, S.W., exhibited a group consisting of a boxful of blossoms of *Magnolia parviflora*, in which the crimson anthers form a distinct contrast with the snowy petals; also blossoms of *M. Watsoni*, with petals internally of a faint rose tint, and externally of creamy white, and brownish-red anthers; the dull crimson-tinted flowers of *Weigela Eva Rathke*; a number of Hybrid Sweet Briars, viz., *Rose Bradwardine*, *Minna*, *Jeannie Deans*, *Meg Merrilies*, *Lucy Bertram*, *Julia Mannering*, &c.; flowering shoots of *Cassipouia japonica*, *Cornus Kousa*, and well flowered branches of the lovely *Fremontia californica*.

Sweet Peas in pots are by no means commonly exhibited, but Mr. H. J. JONES, Ryecroft Nurseries, Hither Green, Lewisham, had a group of about thirty-five varieties, all of them in pots. The plants varied in height from about a foot to 5 or 6 feet high, and the cultivation that had been afforded them differed in many respects. They were all sown upon the same day, but whilst some of the plants had been potted on without division, others were divided. Some were stopped, and others were grown without any stopping; whilst in one case the plant had been cultivated from cuttings. The varieties shown in the group were all select, and exceedingly choice, the range of colour embraced being very comprehensive. In company with the newest varieties of Sweet Peas was the distinct blue, small-flowered *Lathyrus magellanicus*, also known as Lord Anson's Pea; the new crimson Carnation, H. J. Jones; some tuberous-rooted Begonias, and other good flowering plants (Silver Flora Medal).

MARTIN R. SMITH, Esq., The Warren, Hayes Common, Kent (gr. Mr. C. Blick), exhibited a splendid group of plants of Souvenir de la Malmaison type Carnations, for which a Silver-gilt Flora Medal was awarded. All the most recent novelties of this type were represented, and the plants were not less remarkable for their fine flowers than for their vigorous and healthy looking "grasses." Some of the varieties were Calypso, white tinted flesh colour; Lady Rose, beautiful rose colour; Lord Rosebery, bright red or crimson; Cecilia, yellow, and one of the most distinct as well as most beautiful Carnations of this type; King Oscar, red; Florist, rosy pink; Grace, pink, somewhat flaked; and Mrs. Martin Smith, now fairly well known. Mr. SMITH's efforts in the cross-breeding of these Carnations, has resulted in obtaining colours and variations for which he is entitled to thanks from all who appreciate a Carnation of any kind.

Messrs. HEATH & SON, Cheltenham, exhibited plants of two Tree Carnations—Mrs. Brooman White, pink; and Cecil Rhodes, rose-coloured. They were from 4 feet to 5 feet high, but neither of them were granted Awards.

Mr. Walters, gr. to Lord GERARD, Eastwell Park, Ashford, Kent, showed twenty-four nice Rose blooms, one and a half dozen of the new creamy-white flowered Carnation, Lady Gerard, large in size, scentless, and apparently of the Souvenir de la Malmaison class; and foliage and flowers of *Carpinus cordata*; a quantity of garden or decorative Roses, including Southwell Rambler, of a rosy-crimson tint; Réve d'Or, Perle d'Or, &c. (a Bronze Banksian Medal for the entire exhibit).

B. S. WILLIAMS & SONS, Victoria and Paradise Nurseries, Upper Holloway, N., showed a small group consisting of varieties of Carnations of the Souvenir de la Malmaison section, in tints ranging from white to deep rose. They likewise showed crimson coloured varieties of this section, viz., Prime Minister, The Churchwarden, and Lord Rosebery. A small number of varieties of border and florist varieties, were shown including Countess (white), R. H. Measures (crimson), Alice Ayres (rose flaky), Sir Guy, &c. The group was set off by an edging of *Codium*, *Maidenhair Fern*, variegated *Acer Negundo*, *Dracena*, &c.

Messrs. V. N. GAUNTLETT & CO., Japanese Nurseries, Redruth, showed cut stems of hardy Bamboos, including *Arundinaria mitis*, 18 feet high; *A. nitida*, *A. nobilis*, and

well-grown stems of *A. Simoni*, 18 feet in height; *Phyllostachys nigra*, *P. Boryana* (very rare), *P. aurea*, *P. sulphurea*, a very distinct species, with yellowish-coloured stems. All of these exhibits were cut from plants growing in the open ground of a much exposed nursery, situated on a wind-swept hill-side on the north-west coast of Cornwall, and in a kind of soil not of the best. Other exhibits from the firm consisted of about two dozen trusses of *Rhododendron* hybridum in variety, several nice white-flowered varieties amongst them; flower-spikes of *Cordylina australis*, *Orethanthus thyrsoideus* (dicotyledonous), very densely set with blooms; flowering-shoots of *Eurybia macrodon*, and of *Escallonia exoniensis*; *Polygonum Balduanum*, *Embothrium coccineum*, *Kalmia latifolia*, *Rhododendron cinnabarinum* (Bronze Banksian Medal).

Mr. ART. WATERER, Knap Hill Nursery, Woking, Surrey, exhibited four dozen trusses of *Rhododendron* hybridum, having showy tints, and large size; as well as flowering-shoots of *Robinia hispida*, and *R. hispida grandiflora*, with long racemes of light purple flowers, which were individually of considerable size; *R. pseud-acacia* *Decalmanea*, with smaller racemes of white and pink-coloured flowers; and *R. pseudo-Acacia monophylla*, white-flowered, and very abundantly produced (Bronze Banksian Medal).

A plant 6 feet high was shown from the Royal Horticultural Society's Gardens, Chiswick, representing the ornamental Thistle *Onopordion tauricum*, raised from seed sent to the gardens by D. A. CARON, Esq., The Cedars, Upper Jooting. It is a handsome plant, with large glaucous, prickly foliage.

J. T. BENNETT-POE, Esq., Holmewood, Chessington, showed a nice plant in flower of *Veronica Scorpoides*, a *Composita* requiring a stove temperature. It grows from 1 foot to 2 feet high, and has lilac rose-coloured flower-heads.

Petunia Lady White, a double white variety, was shown by Mr. H. BARNARD, Chaweside Nursery, Southgate. It has a good habit, and is free flowering.

HARDY FLOWERS.

Mr. GEO. YELD, York, exhibited blooms of the hybrid *Hymenocallis-Patience*, described in our report of the York Show in the last number of the *Gardeners' Chronicle*.

Mr. AMOS PERRY, Hardy Plant Farm, Windmore Hill, London, N., had a group of hardy flowers which were particularly good in colour and strength. A new variety of *Geranium* is described under "Awards," and a very nice *Heuchera*, somewhat resembling *H. micrantha*, was shown under the name of *H. erubescens*; also some pretty varieties of *Dictamnus fraxinella*. Other good things noticed in this group were *Gnaphalium leonopodium himalaicum*, a very attractive plant; *Iris germanica* in variety, one of which gained an Award of Merit; *Oenothera speciosa* rose, *Incarvillea Delavayi*, *Aquilegia coerulea*, *Heuchera sanguinea*, very fine; *Papaver nudicaule* varieties, the pretty yellow and purple *Artemisia schischkoides*, *Lychnis viscaria splendens* flore-plena, a very showy rosy-purple *Lychnis*; *Allium Schoberii*, &c. (Silver-gilt Banksian Medal).

Another excellent exhibit was one from Mr. M. PATTICHAN, Christchurch Nursery, Hants. There were *Peonies* in considerable variety, *Heuchera erubescens* with whitish flowers, *Gypsophila repens* hybridum with white, larger flowers than *G. paniculatum*; *Delphinium nudicaule* scarlet, *Gilliesia trifoliata*, a grand hardy flowering plant; *Eryngium alpinum*, spikes of *Knautia*, &c. (Silver Banksian Medal).

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, exhibited a group of *Peonies* and *Iris* in pots, being plants lifted from the open ground. There were thirty-one varieties of herbaceous *Peonies*. A fine double white is *Duchess de Nemours*, a sweet scented variety, very free in growth and flower; *Bionia* is a delicate flesh colour, also double; *Gloire de Donai* is very showy, semi-double; *Comte D'Osmond*, double white; *Rubens*, with bright yellow anthers, semi-double; *insignis*, deep mauve colour, double, &c. The *Iris* were all of the section *I. germanica*, and those exhibited represented nearly fifty choice varieties. They were awarded a Silver Flora Medal for flowers of varieties of Spanish and English *Iris*. The number of Spanish *Iris* shown was very large, and the tints represented by the flowers, most delicate, including brown, purple, white, brown, yellow, blue, &c. Those known as English *Iris* have wider segments, and show rather less variation in colour. A fine bloom was shown also of *Iris Susanne* (Silver Flora Medal).

Messrs. KELWAY & SON, Langport, Somerset, again made a remarkable exhibit of cut flowers of *Peonies*, *Delphiniums*, and *Galliardias*; all the blooms of all of these plants were very fine, and much above the usual size. *Galliardias* were of extraordinary size, and varied in colour from pure yellow to others that had narrow margins of yellow only. One of the most noteworthy of these was named Major-General Pole-Carew, rich gold colour. Of *Delphiniums*, Purple Emperor, Lord Chesham, also purple; Miss Gower, mauve colour, with white centre; and Bold Beauty, mauve colour and lilac, were splendid. Beautiful single *Peonies* were Lady Helen Vincent and Hartercombe. Two good double-flowered *Peonies* were Mrs. Gwyn Lewis, white; and Marchioness of Lansdowne, pink (Silver-gilt Banksian Medal).

Messrs. WALLACE & CO., Kilnfield Nurseries, Colchester, had a group of hardy herbaceous and bulbous flowers, in which there were particularly attractive features in the *Calochortis* and *Brodiaeas*, of which a number of varieties were shown. *Lilium Thunbergianum* was also represented by varieties, two very fine ones being Van Houttei and angulinea; Spanish *Iris* and *Peonies*, *Lilium Browni*, &c., were all well shown (Silver Banksian Medal).

Hybrid Aquilegias of the most delicate tints and characteristic perfume were well shown by Messrs. H. CANNELL & SONS, Swanley, Kent, who had a large group of plants in pots (Silver Banksian Medal).

Messrs. T. S. WARE, Ltd., Feltham, were awarded a Silver Banksian Medal for a group of hardy plants and flowers, including varieties of *Iris germanica*, *Sedum Sieboldii*, *Spiraea filipendula plena*, *Muscari*, *Saxifragas*, *Lilium colchicum*, and other species, and the handsome *Sempervivum montanum* (Silver Banksian Medal).

Messrs. BARR & SONS, King Street, Covent Garden, London, W.C., staged their hardy flowers along the side of the hall they usually occupy. The pretty *Gillenia trifoliata* was noticed in this group, also a fine lot of Iceland Poppies, *Ixias*, *Brodiaeas*, *Gladiolus Bysantinus*, &c. Of double-flowered Peonies, Madame Everard, a rosy-purple flower, was novel; also Lord Rosebery, pink. There were Duke of Wellington, white; and Buonaparte, warm rose colour. A single Peony of much beauty was one named Water Lily (Silver Banksian Medal).

Roses.

Mr. B. R. CANT, Colchester, had a choice exhibit of the so-called "decorative" Roses, including such species and varieties as Anna Forestier, rugosa Blanch, double de Coubert, Reine Olga de Wurtemberg, W. Allen Richardson, H. T. Rainbow, Papa Gontier, a beautiful rosy-purple bloom; Gustave Rigis, Scotch White, Austrian Briar, Mignonette, Little Gem, Polyantha simplex, P. grandiflora, and Madame René de St. Marceau, a flower with a fawn-coloured outer petals and crimson centre (Silver Banksian Medal).

Messrs. G. COOLING & SONS, Bath, had a capital group of garden or decorative Roses, amongst which the following were prominent, Purity, white; Yellow Noisette, Rosa Alba, single; Claire Jacquier, Hebe's Lip, single white, with a little colour in the margins of petals; Papa Gontier, Bardon Job, purple-crimson with white centre; Marquis of Salisbury, semi-double, crimson (Silver Flora Medal).

Mr. PRINCE, of Oxford, showed some glorious Rose blooms, mostly Teas or hybrid Teas, there being about ten dozen specimens, and numerous varieties. Particularly good in size and colour we noticed specimens of Comtesse de Nadailac, Souvenir de S. A. Prince, Princess Beatrice, Maréchal Niel, Golden Gate, La Boule d'Or, &c. Amongst these exquisite Tea Roses, Mr. PRINCE had half pyramids of shelves covered with black velvet, and upon these were shown bouquets of Sweet Peas in variety. Altogether, it was a very pretty exhibit (Silver-gilt Flora Medal).

Messrs. PAUL & SON, Old Nurseries, Cheshunt, had a collection of garden varieties, in which shone such favourites as Janet's Pride, single pink and white; R. rugosa alba, Carmine Pillar, and a good selection of Noisettes, &c. Cut sprays of Solanum Wendlandi were also shown in this exhibit (Silver Banksian Medal).

Messrs. FRANK CANT & CO., Braiswick Nursery, Colchester, had a showy and very fragrant exhibit of the more showy of garden Roses. In this exhibit we noticed Bardon Job, well shown, a good number of varieties of the multiflora section, and of mosses and Briars, &c. (Silver Flora Medal).

Messrs. W. PAUL & SON, Waltham Cross Nurseries, Herts, had an exhibit very similar to those already described, but including Leuchstern, a single-flowered variety of the Multiflora type, white, with rose-coloured margins. In addition there were varieties of R. gallica, R. rugosa, and of Provence, Scotch, and other Roses; also Penzance Sweet Briars, &c. Bougainvillea glabra Sanderiana was well shown in bloom in large pots, and several plants of Nicotiana glauca folius variegatus helped much to embellish the exhibit (Silver Flora Medal).

F. W. CAMPION, Esq., Trumpet's Hill (gr., Mr. Pitt), showed a nice lot of Rose blooms, in recognition of which a Silver Flora Medal was awarded.

Messrs. JAS. VARTON & SONS, LTD., Chelsea, showed some plants of Rose Electra, from a cross between R. multiflora simplex and William Allen Richardson. The flowers are single, cream coloured, deeper in centre, and have conspicuous yellow anthers.

Awards.

Anchusa italica grandiflora.—A glorified form of the type, with larger, more richly coloured flowers. A capital plant for the wild garden, or herbaceous border. From Mrs. BULTELL, Sefton Park, Slough (Award of Merit).

Campanula persicifolia Moerhousii.—This variety is a very great improvement upon *C. p. alba grandiflora*, or *C. persicifolia* fl. pl. of which see fig. 134. Some of the flowers of the variety Moerhousii are 2 inches across, and very pure white, borne upon strong erect stems and growths. From Messrs. T. S. WARE, Ltd., Feltham (Award of Merit).

Delphinium The Queen of Hush.—A very effective variety, with deep blue double flowers, very distinct. From Messrs. KELWAY & SONS (Award of Merit).

Eremurus Warei, Hort.—This was shown by Messrs. T. S. WARE, Ltd., Feltham, who describe it as a new species from Central Asia. In root and stock it resembles the late summer-flowering *E. Olga*. It is described as growing in ordinary seasons about 8 feet high, and flowers in May before *E. robustus* Elwesii. The flowers are yellow, less bright than those of *E. Burgel*; and it may prove to be a natural hybrid between that species and *E. Olga* (Award of Merit).

Geranium sanguineum album.—A pure white variety of the well-known and handsome crimson-flowered species. From Mr. AMOS PERRY, Hardy Plant Farm, Winchmore Hill, London, N. (Award of Merit).

Heuchera micrantha rosea.—This variety has denser, longer racemes than the species, and the stems are red-coloured, which makes the plant more effective. From Messrs. WALLACE & CO., Colchester (Award of Merit).

Iris germanica Black Prince.—A variety with very dark purple-coloured "falls," veined with white at their base. From Mr. A. PEARCY (Award of Merit).

Iris paradoxa.—This is a fairly well-known but variable *Oncocyclus* *Iris*, illustrated in *Bot. Mag.*, 7081. In that figure the standards are shown as more or less lilac-coloured. The plants exhibited by C. G. VAN TUBERGEN, Jun., Haarlem, are of the form described by Sir Michael Foster in our issue for June 2, p. 388, and have white standards, veined mauve colour or blue. The "falls" are very deep brown colour. In other respects the flowers were similar to those already seen in this country (First-class Certificate).



FIG. 134.—*CAMPANULA PERSICIFOLIA*, FL.-PL.

Iris urmiensis.—An *Oncocyclus* *Iris*, with flowers about 7 inches high; colour, yellow. From C. G. VAN TUBERGEN, Jr., Haarlem (Award of Merit).

Paeonia Eastern Queen.—A Japanese variety, flowers single, almost circular in outline, opens almost flat; colour, purple-crimson; petals, orange colour. From Messrs. H. WALLACE & CO. (Award of Merit).

Orchid Committee.

Present: Harry J. Veitch, Esq. (in the Chair), and Messrs. Jas. O'Brien (Hon. Sec.), De B. Crawshaw, H. Ballantine, H. Little, J. Gabriel, F. J. Thorne, H. J. Chapman, W. H. Young, W. H. White, J. Douglas, T. W. Bond, J. Jacques, H. A. Tracy, H. T. Pitt, T. Rochford, W. Cobb, J. Colman, J. Gurney Fowler, E. Hill, and A. Truffaut of Versailles.

There was a very fine show of uniformly good subjects that were greatly admired by the numerous visitors, containing however, few novelties of special interest to the orchidist. Consequently numerous medals were awarded for groups, but only one First-class Certificate to a plant; and one Award of Merit was made. Sir TREVOR LAWRENCE, Bart., Burford (gr., Mr. W. H. White), was adjudged a Silver Flora Medal for a very select group, which consisted of a very fine plant of *Laelio-Cattleya* × *Canhamiana* var. Edouard André; a highly-coloured *L.-C.* × *Arnoldiana*, the yellow-petalled *Laelia tenebrosa*, Walton Grange variety; *Cattleya Mossiae* Lawrencei, a fine white with orange markings on each side of the lip, the space between being slightly tinted with rose colour; *Cypripedium* × *macrochilum*, two very fine examples of the best type of *Odontoglossum crispum*, the singular *Luisia Amesiana*, *Phycosiphon Loddigesii*, *Polystachya zambesiaca*, *Habenaria rhodocheila*, a very curious Malayan *Tainia*, a pretty white *Pogonia*, with purple margin to the lip; *Masdevallia* × *Gairiana*, and other rare varieties.

Baron Sir H. SCHROEDER received a Silver Flora Medal for a very choice selection, among which were the noble, purple-spotted *Odontoglossum crispum* Rex, the fine *O. c. xanthotes*, *Cypripedium callosum* Sandere, with two flowers; and other *Cypripediums*; *Laelio-Cattleya* × *eximia*, *L.-C.* × *Lady Wigan*, *L.-C.* × *Hippolyta*, &c.

H. T. PITT, Esq., Rossllyn, Stamford Hill (gr., Mr. Thurgood), was awarded a Silver Banksian Medal for an excellent group, in which were noted two well-flowered plants of *Laelia Digbyana*, some very good *L. tenebrosa*, fine *Odontoglossum crispum*, *O. x Wilkeanum*, *O. Halli*, *O. citrosum*, *Thunia Marshalliae*, *T. Bononiensis*, *Platyclinis filiformis*, *Galeandra devonianum*, *Anguloa Clowesii*, *Cochlidia Noezliana*, fine *Cattleya Warscewiczii*, *C. Mendell*, &c.

H. F. SIMONDS, Esq., Woodthorpe, Southend Road, Beckenham (gr., Mr. G. Day), staged a very showy group in which a row of very good forms of *Laelia purpurata* occupied the back, together with these were some good *Cattleya Mossiae*, *C. Mendell*, *C. intermedia*, bluish-white variety; *C. Schilleriana*, with nine flowers; a good selection of *Odontoglossums*, including half a dozen fine *O. Halli*; *Dendrobiums*, and other Orchids (Silver Flora Medal).

J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr., Mr. Davis), staged an excellent group, in the centre of which were fine plants of *Cypripedium Lawrenceanum* Hyeanum, and *C. callosum* Sandere; and around them were placed six very finely-flowered plants of a fine type of *Cattleya Warscewiczii*; a remarkable *Laelio-Cattleya* × *Aphrodite*, with white sepals and petals, and violet-coloured lip, with white margin; the finely-coloured *Cattleya Eldorado splendens*, and *Cochlidia Noezliana* (Silver Flora Medal).

JEREMIAH COLMAN, Esq., Gattion Park (gr., Mr. W. P. Bound), was awarded a Silver Banksian Medal for a well-arranged group of well-grown plants, including some good *Odontoglossum crispum*, three plants of the white *Cattleya Mossiae* Reinckiana, and one of a very richly-coloured dark form; a fine plant of the brown and yellow *Oncidium monachicum*, *O. olivaceum* Lawrenceanum, &c.

M. FLORENT CLAES, Brussels, staged an interesting group of varieties of *Odontoglossum crispum* and *O. x Adriana*; the best was a large cream-white variety, showily blotched with brown, named *O. crispum* Madame Florent Claes.

Messrs. HUGH LOW & CO., Bush Hill Park, Enfield, staged a good group of *Cattleya Warscewiczii*, *C. Mendell*, *Odontoglossum crispum*, *O. Pescatorei*, *Laelia tenebrosa*, *Epidendrum vitellium majus*, &c. A remarkable plant in the group was noted in *Odontoglossum crispum* Model, of the same peculiar form as *O. c. Oakfield Sunrise*, but with a few brown spots instead of the ruby-red colour on the petals (Silver Banksian Medal).

Messrs. STANLEY, ASHTON MOBBS & CO., Southgate, had a good group of *Cattleyas*, *Odontoglossums*, and other showy Orchids. Remarkable specimens were a grand *Cattleya Mossiae*, with about forty flowers (Cultural Commendation); and *Oncidium flexuosum* unicolor, with the sepals, petals, and lip of an uniform bright yellow (Silver Banksian Medal).

A Silver Flora Medal was awarded to F. A. BEVAN, Esq., Trent Park, New Barnet (gr., Mr. A. Ward), for a magnificent specimen of *Cecylogne Dayana*, bearing about fifty long racemes of singular brown and white flowers, of which in the aggregate there were over two thousand.

Messrs. CHARLESWORTH & CO., Heaton, Bradford, showed a fine plant of *Dendrobium Phalaenopsis hololeucum*, with large, pure white flowers; and *Cypripedium* × *Chapmani* Heatonense (*bellatulum* × *Curtisii superbum*), a very handsome form.

Messrs. B. S. WILLIAMS & SON, Upper Holloway, staged a group including a good plant of *Vanda suavis*, *Laelio-Cattleya* × *Canhamiana*, *Vanda teres*, and a white-petalled form of it; *Laelia tenebrosa*, the pretty yellow and white *Geodorum candidum*, and various good *Cypripediums*.

Sir FREDERICK WIGAN, Bart. (gr., Mr. W. H. Young), showed two forms of *Phalaenopsis speciosa*, and a noble form of *P. grandiflora*.

D. M. GRIMSDALE, Esq., Uxbridge (gr., Mr. J. A. Hooker), sent cut examples of *Dendrobium Devonianum*, *Odontoglossum crispum*, and *O. x Coradinel*.

R. W. RICKARDS, Esq., The Priory, Usk, showed a good *Odontoglossum crispum*, with orange blotches on the lip. Mr. JAS. DOUGLAS sent *Dendrobium tortile*.

W. P. BURKINSHAW, Esq., West Hill, Hestle, Hull, sent *Cattleya Mendell* var. *Maudie*, a large white flower with Rose marking on the lip.

Sir JAS. MILLER, Bart., Manderston, Duns (gr., Mr. J. Hamilton), sent *Laelia* × *Eveline* (*tenebrosa* × *piestans*). Flowers rosy-lilac, with maroon markings on the lip.

J. B. J. - Earl, Warshaw River at W. J. Work, showed
the plant of Cattails Warshaw River at Home.
Earl the Chatterbox showed to a Southern J. B.
W. - Earl, Battle of War was shown the works of Olin-
dore - W. J. Workman House.

[illegible][illegible]

AWARD OF MERIT.

From Riv. Francisco's Wheat, Ber' (gr. Mr. W. H. Young)
7. A flower shows a slight tendency in color towards
redness, while the larger form of the other parent is
retained. Flowers wholly bright yellow.

REGARDING CERTIFICATION

Penstemon gracilis Penn. A. H. Saxe, Esq., The Grange
Hickorydale, Ky., Mr. Humphreys. A slender species, with
a greenish tawny, with slight purple markings.

Fruit and Vegetable Committee.

Personal Mrs. Briggs at Far. in the Chair; and Messrs. W. W. Co. J. H. Veitch, Henry Kellogg, A. F. Barron, W. Pope, Mrs. Kell, Alex. Deane, A. Mortimer, W. Bates, W. Farr, G. T. H. Co., G. Wytheus, F. G. Lane, H. Markham, E. Beckett, G. Croome, and J. Willard.

C. E. BRACHMAN, Esq., Glendon Park, Hermal Hempstead (ex. Mr. H. Polke), exhibited twelve dishes of Peaches Royal George and Dr. Hogg. The fruit was of middle size and greatly colored; he showed also seven ripe Melons (Silver Bismarck Medal).

F. W. CAMPION, Esq., Hargate (gr., Mr. Pitt), showed about half a gallon of very nice Royal Bayswater Strawberries.

A fine exhibit of fruit came from Lord WATKINS, Lockington, Waite (gr. Mr. W. Fyle), this consisted of six bunches of Macfadden Court and six of Foster's Seedling Grapes, of very good quality; four dishes of Ann Stirling Castle Peaches, four of Nectarine Imperator; every fruit in each dish finely colored and perfect; four dishes of diverse Figs, and four Malins (Carter's British Queen), a prettily-netted, small fruited variety (Silver gilt Nuthatch Medals).

A very nice collection of Melons in some of the leading varieties was shown from Lord Ounant's garden, Eastwell Park, Ashford, Kent (gr., Mr. H. Walters) (Silver Knight and Moby).

Lecture on Aquatic Plants.

In the afternoon a lecture on Aquatic plants was delivered by Prof. G. S. BOYD, who treated the subject exclusively from the point of view of the botanist, and afforded very interesting information to those present, of the characteristics of a large number of water and bog plants, and explained in what particulars the life history of some of these plants differ from others of the same class.

PARIS EXHIBITION.

JUNE 18. The Palais de l'Horticulture on this occasion was well furnished, but without any special features. Many of the groups were nearly identical with those of the two preceding meetings. The fine *Pseuda* from China and Japan, exhibited by MM. DESBRIE of Chagnonvaux, PAILLET of Chateaux-Milieu, de Bourg la Reine, and HOBERT CHOUX, DESEMME of Viller, were worthy of note. Orchids were shown by MM. MARION of Brunoy, LEBLANC of Bougival, DUVAL, and TREPAST of Versailles, and others. M. MARION showed a fine *Cattleya Moser*, and a splendid *Laelia Cattleya*, dedicated to the Comtesse de la Bassetiere. M. HOBERT LEBLANC (gr. M. Page) had a group, the centre of which was occupied by the trunk of a tree covered with *Cattleya*, *Laelia majalis*, *Oncologystis*, and other Orchids, as well as *Nepenthes*. M. DUBOIS of Fontainebleau showed a small lot of hard terrestrial Orchids. M. POUCHET of Versailles had fine ones *Falsargonium*, including two fine novelties—*Madame Galpin* and M. Pierre Clouet. Roses were exhibited by M. LEBLANC POUCHET DUCHEN, and others. From MM. DUVAL & FILLES Versailles came excellent specimens of *Dracena Masson* gramin, and stove and greenhouse Ferns, grown for market.

Animals were largely exhibited by MM. Girard, and by Vermorel, Andreux et Cie., who had a remarkable group of Malagasy birds.

The centre of the great rotunda was occupied by gran specimen *Rhododendrons*, from M. Moser of Vevey.

In the foreign section, M. HELM of Brandon showed group of *Houglavillea glabra* and *Mandevilla*, and M. RUSSELL of Berlin exhibited fine clumps of retarded Lily of the Valley. In the Champs Elysees, M. AUGUST THOMPSON of Versailles filled an entire house with Orchids, Crotons, Palms, Ferns and *Dracaena*, the whole producing a most attractively

Behind the great palace in the Champé River is a sun-
with boardwalk with rocks with a rustic bridge. This pla-
ture walk was constructed by M. Chavira, and is plants
with Coriaria and other ornamental plants. It contains
little pond filled with aquatic plants. M. Moya, a
narrator of Hologuá en Bello, also placed here a pret-
ty collection of alpine plants.

LEITRAN.

President, in
1911

Mr. R. Norton Middleton, F.R.S., exhibited a letter, dated "London, June 13, 1794," in the handwriting of Sir J. E. Smith, addressed to Charles Louis L'Héritier, at Paris, in which he mentioned a visit to Oxford with Sir Joseph Banks and J. Dreyer, for the purpose of looking over the plants and drawing up of Abbot, who was then securing these; and added some critical remarks on several species of *Mida* which L'Héritier had sent him for determination.

Mr. M. Middleton also exhibited an engraved portrait of Sir J. E. Smith, from the *Gentleman's Magazine*, 1828, which with the letter he presented to the Society.

Mr. F. Enock, F.L.S., with the aid of the lantern, exhibited several photomicrographs and photographs of living insects and gave an illustrated account of the life-history and metamorphoses of a dragonfly (*Ecdyon cymus*).

Mr. E. S. Goodrich, F.L.S., read a paper entitled, "Notes on Syllis vivipara, Krohn."

Dr. JOHN STAPF, A. L. S., read a paper on the two Melastomaceous genera *Dicallandra*, Hook. f., and *Paracourea*, Gilg.

A paper was read by Miss A. L. Embleton, B.Sc., giving a full account of the anatomy and histology of *Echiturus*. The abstracts received from Prof. K. Mitsuaki of Tokyo.

E. L. Hartog, Professor M. Hartog, F.L.S., Flowers of new
 American seedlings; Dr. Otto Stapf, Fruits of various forms
 of *Trapa natans*; Mr. Clement Reid, F.L.S., Cultivated Plums
 from the Roman Station at Silchester; Dr. O. St. Brody
 specimens of Plants, dried by a new process; Mr. R. Morton
 Middleton, F.L.S., Rush-baskets, rope, and dredge, made
 from *Bosthorica grandiflora*, Hook. f.; and Crab-catcher and
 Limpet-detacher, made from *Berberis ilicifolia*, Forster, al-
 used by the Yabgans south of Bangla Channel, Tierra de
 Fuego.

THE GARDENERS' COMPANY.

JUNE 14.—A dinner was given on the above date by the
 Gardeners' Company at the Prince's Restaurant, Piccadilly,
 "to meet the Lord Mayor, the Lady Mayores, and the
 Sheriffs." The Master, Mr. Philip Crowley, presided, having
 on his right and left the Lord Mayor and the Lady
 Mayores; and the company included Mr. Ritchie, M.P.,
 Sir W. and Lady MacCormac, Alderman and Sheriff Sir
 W. P. and Lady Treloar, General Sir Francis Norman,
 Sir W. and Lady Thesilton-Dyer, Mr. Evelyn Cecil, M.P.,
 and the Hon. Mrs. Cecil, Alderman Sir Marcus and Lady
 Samuel, Mrs. Baden-Powell, the Mayor of Orroydon, the
 Past-Master Sherwood, Mr. W. Baden-Powell, Q.C., the
 Rev. W. Wilks (Past-Master), Colonel T. Davies Sewell, Mr.
 C. E. Osman (Upper Warden), Mr. G. W. Burrows (Renters
 Warden), and Mr. E. Goston-Salmond (the Clerk). Mr.
 Ritchie, in proposing "The Lord Mayor and Corporation and
 Sheriffs of London," remarked that the Corporation had for
 centuries enjoyed respect and esteem on account of the
 public services which it had rendered to the citizens.

It was generally recognised that the onerous duties which devolved on the Lord Mayor had been most efficiently discharged in the present exceptional year. The Lord Mayor and Alderman and Sheriff Sir W. Treloar responded, his lordship claiming that the Corporation were carrying out their duties to the entire satisfaction of the citizens. The Lord Mayor afterwards proposed "The Gardeners' Company," for which the Master responded. A reception and entertainment in the galleries of the Royal Institute of Painters in Water Colours followed.

SUNNYHILL, LLANDUDNO.

PLEASANTLY situated under the shelter of the Lesser Orme Head, and with the Great Orme and other rocks in the distance, the compact gardens surrounding the house of Joseph Broome, Esq., would need but little adaptation from its original state in the opinion of some who delight in natural gardens. But during the many years in which Mr. Broome took a leading part in horticultural matters in Manchester, and especially in the development of the gardens of the Manchester Botanical and Horticultural Society at Old Trafford, his love of florists' flowers and Orchids, which formed his chief pastime when he resided at Wood Lawn, Didsbury, could not be allowed to diminish in the retirement which he contemplated when he arranged the gardens of his Llandudno residence. The situation is very favourable for growing flowering plants of all kinds, many of the tender shrubs being perfectly hardy there if properly placed; but the sweeping winds which often pass over the coast rendered it necessary that shelter should be provided for florists' flowers and tender shrubs, and hence the greater part of the garden is provided with close hedges of Sweet Briar, Privet, or other shrubs, forming a number of separate compartments, each complete in itself, and the number and dissimilarity of which

always surprise the visitor. One pretty one with tennis-lawns in the middle, is surrounded by flowering shrubs, Conifers, and moss-leaved shrubs. Prominent objects are a great bush of *Rosa rugosa*, and the bright one of the Golden Elder. In the beds of several these gardens there is a permanent stock of bulb-plants and herbaceous perennials, and the spaces between these are filled in with showy annuals, so that a continuous succession of flowers is obtained. In this garden the *Violas* are very effective; and different *Aquilegias*, varying from pale yellow to red and violet, are very beautiful. In another garden, the *Gladiolus Colvillii* and its variety, and the *Mentha*, all of which grow luxuriantly, are about to make a fine show. Some species of *Tulips* give brilliant colour. And the herbaceous plants, *Lychnis vicaria* *sp.* *plena*, and *Saxifraga granulata* *sp.* *plena*, are very showy; and of the surrounding shrubs, a *Weigela* and *Philadelphus* were finely in bloom. On the bank beside the house, great patches of *Cerastium tomentosum* and *Aubrietia* were in flower, and beyond is a sunk garden with well arranged in geometrical form, the centre occupied by a high pyramid of Crimson Rambler Rose. A greater part of the other beds being filled with various fine varieties of Tea Roses, which will flower late into the winter. With the Roses, and with other shrubs capable of producing colour foliage, it is remarkable that here they are a reddish-bronze colour, the young shoots being lighter than the old. In the same way the *Golden Yews* become orange colour with reddish tint, so many of the flowers, such as the *Armeria* or *Pinks*, with which many of the borders are edged, are much darker and brighter in colour than they are inland. On the wall with other showy trailers is the large specimen of *Ceanothus rigidus* recently remarked on in the *Gardeners' Chronicle*, and on the borders the double *Ranunculus* give a profusion of showy flowers such as used to be more familiar in gardens many years ago than they are now. On one side is a rockery, well furnished with masses of pretty species in bloom. Among these now were *Moricea hypogæa*, the *Alpine Edelweiss*, *Lychnis Lagasce*, *Ajuga genevensis*, *Achillea argentea*, *Veronica prostrata*, and many *Saxifraga*, while in a sheltered spot a quantity of *Cypripedium spectabile* is thriving, and *C. calceolus* and *C. parviflora* were in bloom.

Another little garden has the centre filled with fine beds of Carnations; the rockery having a good show of flowers on the dwarf Phloxes and other rock plants, while on one side are some pyramidal fruit-trees, which also appear in other of the arrangements, effectively affording flowers in the early part of the year and good fruits later. In the other parts of the garden, the Irises, *Paeonia*, *Sobitzanthus*, Pinks, *Pyrethrums*, Stocks, Wall flowers, and similar flowers are very showy; and the hedges of species of *Roses*, *Penzance Briars*, &c. of unusual luxuriance. A field is being broken up to add to the area of the garden, and the kitchen-garden is conveniently situated, the ground above it still remaining in its wild condition, the steep, rocky side clad with *Geranium sanguineum*, *Helianthemum*, dwarf wild *Rose*, and other wild flowers.

The gardens are cleverly arranged, and the subjects used so disposed that a succession of flowers in all parts is secured. The spring show of coloured Primroses and Auriculas, now just over, must have been very fine.

THE ORCHIDS

are represented by a large number of the showy species, the *Cattleyas*, *Laelias*, and *Odontoglossums* predominating. For the better accommodation of the *Odontoglossums*, two excellent new houses have been built, and the collection has recently been removed to them. Among them are some very extraordinary forms of *O. Hallii xanthoglossum*, and *O. Hallii leucoglossum*, a few of which are in bloom, one strong plant having a spike of flowers with six branches; and among others in bloom with these are the showy violet-coloured *O. Edwardii*, *O.*

cordatum, *O. cirrhosum*, *O. gloriosum*, and several *Epidendrum vitellinum majus* and *Oncidium concolor*.

In the adjoining house is a good display of *O. crispum*, including many of the pretty *O. crispum* Lehmanni, which is so easily distinguishable by its large, broad, ovate lip. One variety is specially distinct, having dark red blotches on the lip and sepals. Also in bloom is a peculiar form of *O. × Coradinei* and *O. × Andersonianum*; and the end of the house has a brilliant show of varieties of *Masdevallia Harryana*, *M. ignea*, and *M. Veitchiana*.

The old *Odontoglossum*-house has a number of flowering plants of *Masdevallia chimera*, *M. bella*, and others, suspended from the roof; also some good plants of *Odontoglossum citreum*, sending out flower-spikes profusely; *Lælia monophylla*, about to produce its scarlet flowers; *Nanodes Medusa*, and other species which thrive best suspended.

The large *Cattleya*-house has a very fine display of many good forms of *C. Mossiae*, *C. Mendeli*, *Lælia purpurata*, *L. tenebrosa*, and other showy species. Here *Lælia Digbyana* thrives well, one of the plants having three flower-sheaths. *Cattleya Rex* also grows and flowers vigorously, and the same remark applies to other things reputed difficult to grow, even *Epidendrum bicornutum* being well flowered. Also in bloom in this house are the rare *Epidendrum porphyreum*, *Lælia cinnabarina*, *L. Boothiana*, *Odontoglossum hastilabium*, *Burlingtonia candida*, with sixteen spikes, *Miltonia Phænopsis*, *M. vexillaria*, *Cymbidium Lowianum*, *Cattleya luteola*, *Oncidium phymatociliatum*, and other *Oncidium*s, various *Cypripedium*s, *Dendrobium atrovirens*, *D. fimbriatum*, and other *Dendrobium*s. Here *Cattleya Warscewiczii* and *C. Warneri* grow very strongly, and nine out of every ten of them flower well annually, which proves that their being difficult to flower does not apply in all cases.

In the other houses, noted as being well in bloom are *Sobralia macrantha*, *Calogyne Dayana*, *Vandaraea*, *Dendrobium linguaeforme*, *D. Dalhousieanum*, some very fine *D. Bensonia*, and other *Dendrobium*s, *Miltonia flavescentia*, *Oncidium lanceanum*. In most of the houses foliage plants are growing beneath the stage, and on the roof in some houses are climbers, the *Dipladenia Bolwiana*, *Stephanotis*, *Begonia corallina*, *Clerodendrons*, *Gloriosa superba*, *Bougainvillea*s, &c., making a good show of flowers.

In the other plant-house in bloom were some good good scarlet *Anthurium*s, a good hatch of *Achimenes*, another of a very fine strain of *Sonchella Hendersoni* and other coloured foliage-plants, and a finely-grown stageful of *Eucharis*. One house is nearly filled with very fine plants of *Carnation Souvenir de la Malmaison*, and in others are good selections of flowering and foliage greenhouse plants.

THE FRUIT-HOUSES

are excellently well cropped, and especially the vinery, which has a very heavy crop of fine bunches, principally Muscat of Alexandria and Black Hamburgh.

In the gardens at Sunny Hill, Mr. A. C. Artell, the gardener there, has an important charge, not so much on account of the extent of the place, as of the many and dissimilar subjects cultivated, and most of which he succeeds in bringing into excellent condition.

THE WEATHER IN WEST HERTS.

SINCE the three hot days of the 10th, 11th, and 12th, the weather has continued moderately warm. At both 1 foot and 2 feet deep the soil is now about 2° warmer than is seasonable. Rain fell on four days, principally in the form of sharp showers, but the total measurement was small. In fact, the ground at a short distance below the surface is still very dry. For instance, no measurable quantity of rain-water has come through the bare soil percola-

tion gauge for nearly four weeks, and not any through that on which grass has grown for nearly two months. Cloudy skies have mostly prevailed during the past week, the record of clear sunshine averaging only four and a half hours a day.

The first Tea Rose to flower in the open ground in my garden was *Souvenir de S. A. Prince*, which was in bloom on the 11th, or exactly the average date for the first Tea in the previous fourteen years, but three days later than last year. The first Hybrid Perpetual to bloom was *Madame Gabrielle Luizet*, on the 19th, which is one day later than the fourteen years' average for the first Hybrid Perpetual, and two days later than last year. *E. M., Berkhamsted, June 19.*

LAW NOTES.

BOYS DAMAGING A WINE-MERCHANT'S FRUIT-TREES.

At the West London Police Court, on the 18th inst., Herbert Lawrence, age 14; William Smith, 12; Alfred Scott, 11; Frederick Lawrence, 11; John Jenkins, 11; and John Smith, 9, were charged before Mr. Lane with wilfully damaging fruit-trees growing in a garden, in the rear of 4, Fulham Park Gardens, of the value of £10, the property of Mr. James Gowdey, a wine-merchant.

The prosecutor, who stated that the house was unoccupied, told the magistrate that the damage had been going on for about a week. All the Apple and Pear-trees in the garden were destroyed. Large boughs of trees were produced in court by the police.

Mr. Lane ordered the elder Smith to receive ten strokes with a birch-rod, and his brother six strokes. H. Lawrence, who was above age, was fined 5s. or five days' imprisonment, and the other boys were each ordered to receive six strokes with the birch-rod.

MARKETS.

COVENT GARDEN, JUNE 21.

(We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctuate, not only from day to day but often several times in one day. Ed.)

PLANTS IN POT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Acacias, per dozen	12 0-18 0	Ferns, small, per 100	4 0-6 0
Adiantum, p. doz.	5 0-7 0	Fiens elasticis, each	1 0-7 6
Arbor-vitæ, var., doz.	6 0-8 0	Foliage plants, var., each	1 0-5 0
Aspidistra, p. doz.	18 0-26 0	Genistas, per doz.	6 0-9 0
— specimen, each	5 0-10 6	Lily of Valley, each	1 0-3 0
Crotons, per doz.	18 0-30 0	Lycopodiums, doz.	8 0-4 0
Cyclamen, per doz.	8 0-10 0	Marguerite Daisy, per dozen	8 0-12 0
Dioscorea, var., per dozen	12 0-30 0	Myrtles, per dozen	6 0-9 0
— viridis, per doz.	9 0-18 0	Palms, various, ea.	1 0-15 0
Erica, var., per doz.	12 0-36 0	— specimen, each	21 0-68 0
Eucalyptus, various, per dozen	8 0-18 0	Pelargoniums, scarlet, per dozen	8 0-12 0
Evygreen, var., per dozen	4 0-18 0	— Ivyleaf, per doz.	8 0-10 0
Ferns, in variety, per dozen	4 0-18 0	Spiræas, per dozen	6 0-12 0

OUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arums	...	Marguerites, p. doz.	...
Asparagus "Fern"	...	bunches	...
bunch	...	Mignonette, dozen	...
Carnations, per doz.	...	bunches	...
blossoms	...	Narcissus, Double	...
Cattleyas, per dozen	...	White, doz. bun.	...
Eucharis, per dozen	...	Odontoglossums, per	...
Gardenias, per doz.	...	dozen	...
Gladiolus, scarlet,	...	Roses, Red, per	...
per dozen	...	dozen	...
— white, per doz.	...	— Tea, white, per	...
Lilac, white, bunch	...	dozen	...
Lilium Harrisi, per	...	— Safrano, per doz.	...
dozen blossoms	...	— Maréchal Niel,	...
Lilium longiflorum,	...	per doz.	...
per dozen	...	— Catharine Mer-	...
Lily of Valley, per	...	met, per dozen	...
doz. bunches	...	Smilax, per bunch	...
Maidenhair Fern,	...	Tuberose, per doz.	...
per doz. bunches	...	blossoms	...

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, Tasmanian (various sorts) cases	8 0-10 0	Grapes, Belgian, per lb.	0 10-1 3
Apples, Victorian, cases	9 0-12 0	Lemons, case	18 0-20 0
Apricots, box 24	1 0-1 6	Melons, each	2 0-3 0
Bananas, bunch	5 0-6 0	Nectarines, per doz.	7 0-10 0
Cherries, per sieve	2 0-6 0	Class A.	2 0-4 0
— strikes	8 0-3 6	Class B.	2 0-4 0
— English, sieve	5 0-6 0	Oranges, Denia, per case	20 0-—
— peck	3 0-—	Peaches, per dozen	10 0-18 0
Figs (New), per doz.	2 0-6 0	Class A.	8 0-8 0
Gooseberries, sieves	1 8-1 6	Class B.	1 0-3 0
Grapes, Hamburgh, new, per lb.	1 6-2 0	Strawberries, per lb.	1 0-1 6
— Colmar	0 10-1 8	Class A.	0 4-0 6
— Gros Maroc, lb.	2 0-3 0	— English, pecks	4 0-5 0
— Muscats, new, per lb.	1 6-3 0	— Southampton, baskets	1 0-2 0

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	2 0-—	Mushrooms, house, per lb.	0 8-10 0
Asparagus, English, natural	0 10-2 0	Onions, picklers, per sieve	3 6-—
— Giant, bundle	4 0-5 0	— Egyptian, per cwt.	6 0-—
Beans, Channel Islands, per lb.	0 4-—	— Green, dozen	3 0-6 0
— Broad, or Longpods, house-grown, in sieves	3 6-—	Parley, 12 bunches	2 0-3 0
— English Dwf. per lb.	0 6-—	— per sieve	1 0-1 6
Beetroot, per dozen	1 0-—	Peas, Blue	4 0-5 0
— per bush	2 0-2 6	— English, per bushel	3 6-4 0
Cabbage, tally	8 6-8 0	— (White), in bags	6 0-—
— dozen	0 10-1 2	Potatoes, New Channel Islands, per cwt.	9 0-10 0
Carrots, new, bunch	0 4-0 6	— Tenerife, in boxes, cwt.	8 0-10 0
Canillflowers, per dozen	4 0-5 0	Radishes, dozen	1 0-1 6
Cress, doz. punnets	1 6-—	Rhubarb, per dozen bundles	1 0-—
Cucumbers, doz.	2 0-3 0	Salad, small, punnets, per dozen	1 8-—
Endive, new French, per dozen	1 6-—	Shallots, new, per dozen bunches	1 6-2 0
Garlic, new, dozen bunches	2 0-—	Spinach, Spring, per bushel	1 6-2 0
Horseradish, English, bundle	1 6-—	Tomatoes, English, new, per 12 lb.	4 0-5 0
— foreign, per bundle	1 0-—	— Chan. Is., p. lb.	0 8-0 4
— loose, per doz.	1 0-—	Turpins, new French, per bunch	0 3-0 4
Leeks, per dozen bunches	2 0-—	Vegetable Marrows, per dozen	8 0-—
Lettuces, English Cabbage, bush	1 0-1 6	Watercress, p. doz. bunches	0 4-0 6
— English Cos, per score	0 3-1 0		
Minis, new, p. doz. bunches	2 0-3 0		

REMARKS.—English Cherries have commenced to reach the market, also Strawberries in baskets holding a peck. Lettuce are now largely supplied, and prices rule low. Some Jamaica Pines came to hand since our last report in a much better condition than hitherto, and they realised satisfactory prices.

POTATOES.

Cherbourg, 8s. to 8s. 6d. per cwt.; Dunbar, 150s.; Malta, 9s.; Jersey, 9s. to 9s. 6d. per cwt. John Bath, 32 & 34, Wellington Street, Covent Garden.

FRUIT AND VEGETABLES.

GLASGOW: June 20.—The following are the figures current since our last report:—Apples, Tasmanian, New York Pippins, 14s. to 15s. per case; Sturmers, French Crabs, Stone Pippins, Adams Pears, 8s. to 12s. per case; Bananas, extras, 8s. to 9s. 6d. per bunch; No. 1, 7s. to 8s. do.; No. 2, 5s. to 6s. do.; Oranges, Valencia, ordinary, 420's, 18s. to 20s. per box; large, and extra large, 420's, 22s. to 26s. do.; Jumbos, 27s. to 28s. do.; extra large, 714's, 24s. to 28s. per case; Onions, Egyptian, 4s. to 4s. 6d. per cwt.; Tomatoes from Canary and Tenerife, are nearly finished for the season, Guernseys taking their place, deeper, from 2s. 6d. to 3s.; Potatoes, Canary and Tenerife Kidneys, 12s. to 14s. per cwt.; Maltese, 11s. to 12s. do.; Jersey do., 11s. to 12s. do.; Lemons, Naples, 420's, 12s. to 15s. per case; Palermo, 250's and 300's, 8s. 6d. to 9s. 6d. do.; 300's, 7s. 6d. to 8s. 6d. do.; Parsley, 8d. to 10d. per doz. bunches; Cucumbers, 1s. 3d. to 2s. 9d. per dozen; Canillflowers, 1s. 3d. to 2s. 6d. do.; Cabbages, 8d. to 1s. 6d. do.

LIVERPOOL: June 20.—Wholesale Vegetable Market.—Potatoes, per cwt.: Main Crop, 4s. 6d. to 5s.; Braces, 8s. to 4s. 6d.; Champions, 8s. 6d. to 4s.; Jerseys, 10s.; Onions, foreign, 3s. 6d. to 4s. 9d. per cwt.; Parsley, 8d. to 10d. per dozen bunches; Cucumbers, 1s. 3d. to 3s. per dozen; Canillflowers, 1s. 3d. to 2s. 9d. do.; Cabbages, 8d. to 1s. 6d. do. St. John's Potatoes, 1s. to 1s. 6d. per peck; do., new, 1d. to 2d. per lb.; Grapes, English, 1s. 6d. to 3s. do.; Pines, English, 4s. to 6s. each; Apples, 4d. to 6d. per lb.; Tomatoes, 6d. to 10d. do.; Strawberries, 8d. to 1s. do.; Gooseberries, 2d. do.; Peas, 4d. do.; Cherries, 1d. to 1s. do.; Apricots, 1s. 6d. to 2s. per dozen; Asparagus, 1s. 6d. to 3s. per bundle; Cucumbers, 3d. to 4d. each; Mushrooms, 1s. to 1s. 6d. per lb. Birkenhead—Potatoes, 1s. to 1s. 2d. per peck; do., new, 2d. per lb.; Asparagus, 2s. to 5s. per 100; Cucumbers, 4d. to 6d. each; Cherries, 8d. per lb.; Apricots, 1s. 6d. per dozen; Gooseberries, 2d. per lb.; Peas, 4d. do.; Filberts, 1s. do.; Grapes, English, 2s. 6d. do.; Pines, English, 3s. 6d. to 6s. each; Strawberries, 8d. to 1s. per lb.; Mushrooms, 1s. to 1s. 3d. do.

SEEDS.

LONDON: June 20.—Messrs. John Shaw & Sons, Seed Merchants, of Great Mase Pond, Borough, London, S.E., write that there were but few buyers on to-day's market, and scarcely any transactions passing. It is noteworthy that Germany is still buying Red Clover-seed from London. As regards Tares, stocks seem about exhausted. Full prices are asked for Mustard and Rape-seed. Canary-seed meets with growing attention, and some quantity has been changing hands at hardening rates. There is no change this week in either Millet, Hemp, or Linseed. The market for Blue Peas and Haricot Beans is firm. Some fine new Lupins, suitable for feeding purposes, are now obtainable on remarkably low terms.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending June 16, and for the corresponding period of 1899, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1899.		1900.		Difference.
	s.	d.	s.	d.	
Wheat	25	7	25	6	- 0 1
Barley	23	1	23	8	+ 0 7
Oats	17	10	18	11	+ 1 1



METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period June 10 to June 16, 1900. Height above sea-level 24 feet.

1900 ¹		Direction of Wind.	TEMPERATURE OF THE AIR.				RAINFALL.	TEMPERATURE OF THE SOIL AT 9 A.M.			LOWEST TEMPERATURE OF GRAIN.
JUNE 10 TO JUNE 16.	At 9 A.M.		Day.	Night.	At 1-foot deep.	At 2-foot deep.		At 4-foot deep.			
	Dry Bulb.								Wet Bulb.		
										Highest.		Lowest.
SUN. 10	S.S.E.	deg.	deg.	deg.	deg.	Ins.	deg.	deg.	deg.	deg.	
MON. 11	E.N.E.	74.4	61.4	80.7	48.3	...	60.2	57.2	53.5	37.5	
TUE. 12	N.W.	72.0	63.2	86.4	57.9	...	68.1	57.9	53.5	46.2	
WED. 13	S.S.W.	74.5	66.8	81.5	55.6	0.04	64.9	58.9	53.9	47.0	
THU. 14	S.S.E.	59.8	56.5	67.5	56.8	...	63.9	59.5	54.2	51.5	
FRI. 15	S.S.E.	62.1	56.5	65.9	46.6	0.12	61.9	59.3	54.5	38.2	
SAT. 16	S.S.W.	62.7	59.8	68.5	54.3	...	62.0	59.1	54.8	53.5	
MEANS...	...	59.9	57.9	68.2	53.3	...	61.4	59.1	54.9	44.1	
						Tot.	0.16	62.5	58.7	54.2	45.4

Remarks.—The first part of the week was remarkable for very high temperature, the highest being on Monday, the 11th inst., when the shade-temperature outside the screen read 90.5°. There was a slight thunderstorm on the 12th inst., since which time the weather has been more or less dull.

GENERAL OBSERVATIONS.

The following summary record of the weather throughout the British Islands, for the week ending June 16, is furnished from the Meteorological Office:—

"The weather during this period, although warm during the first few days, was of an unsettled character generally. Thunderstorms were of frequent occurrence, especially over England, and the accompanying rain or hail very heavy in some places; over the Kingdom as a whole, however, the rainfall brought by the storms was comparatively slight.

"The temperature was above the mean in all districts, the excess ranging from 1° in 'Ireland, S.' and 2° in 'England, S.W.' and the 'Channel Islands,' to 5° in 'Scotland, N. and W.,' 'England, N.E.,' and the 'Midland Counties,' and to 6° in 'England, E.' The highest of the maxima were recorded on the 11th or 12th at most of the English stations, but on rather irregular dates in Ireland and Scotland. They varied from 88° in 'England, S. and E.' (in London and at Cambridge), and 87° in the 'Midland Counties,' to between 79° and 76° in Scotland, and to between 74° and 72° in Ireland. The lowest of the minima, which were registered either at the commencement or towards the end of the period, ranged from 41° in 'Scotland, W.,' to 46° in 'Ireland, N.,' and the 'Channel Islands,' and to 47° in 'England, S.'

"The rainfall was less than the mean in 'Scotland, N.' and 'England, E.,' but more in all other parts of the Kingdom. In the 'Midland Counties' and 'Ireland, S.,' the excess was considerable, and in 'England, S.W.,' very large.

"The bright sunshine exceeded the mean in all the 'Wheat producing' districts, and was deficient in all the 'grazing' districts. The percentage of the possible duration ranged from 55 in 'England, E.,' and 47 in 'England, S.,' to 32 in the 'Channel Islands,' 31 in 'Ireland, S.,' and 30 in 'Scotland, W.'"

GARDENING APPOINTMENTS.

Mr. W. J. EMERSON, for the past thirteen years Head Gardener and Steward to the late Mrs. WINGFIELD, as Agent and Farm Steward to FRANK HARGREAVES, Esq., Halford Manor, Shipston-on-Stour, Warwickshire. All communications after June 23, should be addressed to Merton Grange, Camlingay, Cambs.

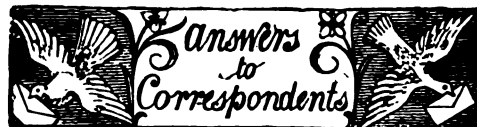
Mr. CHARLES ABBOTT, late General Foreman at Lonsborough Park, Market Weighton, Yorkshire, as Head Gardener to the Right Hon. The Earl of CAMBRIDGE, Elton Hall, Peterborough, and entering on his duties there on the 7th inst.

Mr. A. H. LOTT, for the past three years Foreman in the Gardens, Lovat Bank, Newport Pagnell, Bucks, succeeds Mr. A. THOMAS as Head Gardener to F. J. TAYLOR, Esq., at the same place.

Mr. J. COLLINS, for the past eighteen months Gardener at Maiden Eridge, Reading, Berks, as Gardener to S. B. JOEL, Esq., at the same place.

Mr. JAMES TROUP, for the past six and a half years Gardener at Balgray, Lockhart, Dumfriesshire, as Gardener to Sir ROBERT JARDINE, Bart., of Castlehill; and Mr. WM. McLEAN, for the past seven and a half years Foreman at Lanrick Castle Gardens, Perthshire, succeeds Mr. TROUP at Balgray.

Mr. ALFRED DRYDEN, late Gardener at Castle Martin, Newbridge, Co. Kildare, as Gardener to Sir GILBERT KING, Bart., Charlestown, Drumana, Co. Leitrim.



CATTLEYA FLOWERS FOR NEW YORK: Forty Years Subscriber. We have received Cattleya flowers from New York in perfectly fresh condition, and therefore there would be no reason why they might not be sent to New York so as to arrive in a similar state. But of course it would entail risk. Sometimes they might travel well and at others badly. The better way will be to cut them in a mature state as soon as the flowers are fully formed, and not in a growing state. Silver paper or other material than cotton-wool should be used in packing. Only one or two layers should be sent together, shallow boxes being used. Cool stowage will of course be absolutely necessary.

ELM-TREE BLEEDING FOR A YEAR: H. R. We are unable to advise you further than to forthwith ring the bark a foot or more below the point of bleeding, which may induce callus building, and in that way stop the exudation. Should this occur the branch would have to be cut back next winter to that point.

HOLLIES PLANTED IN APRIL NOW DEAD: S. F. M. The shoots sent are quite dead, and there is nothing to show that they have been attacked by fungus. The injury seems to be mechanical. You do not explain your treatment of the plants, when and after they were taken up and replanted.

HOLLY LEAVES: W. B. The leaves are affected by the Holly-fly (Phytomyza illicis). Sweep up the fallen leaves, and burn them; afterwards syringe the tree with Quassia-water and soft-soap.

"KEW BULLETIN," AND "TROPICAL AGRICULTURIST": Colonist. The works mentioned may be seen at the Lindley Library, and at Royal Gardens, Kew; also at this office. Articles on Pine-apple culture will be found in the latter work; the countries in which it is undertaken being the Azores, Bahamas, India, Jamaica, Philippine Islands, and Singapore.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—Priority. Sorbus Aria.—G. H. James. The wild original of Rosa multiflora, Thunb., from which many garden Roses are descended.—A. B. 1, Helichrysum petiolatum; 3, Senecio doricornis.—T. H. O. P. 6, Saponaria oymoides.—C. W. D. Oxytropis campestris.—P. & Sons. Brassia verrucosa.—Sylvia. Astrantia major.—L. Yarm. Lelia purpurata, both good and distinct varieties.—H. R.

Richardia albo-maculata; we cannot say whether you can legally recover for the error of the Dutch firm in supplying it for the large-spined Richardia.—W. C. Asplenium bulbiferum.—L. P. S. S. Lælio-Cattleya × Schilleriana, a natural hybrid between Cattleya intermedia and Lælia purpurata.—J. T. Ornithogalum lacteum.—A. B. Cyrtopodium bellatulum, very fine.—W. C. Altrincham. Achillea ptarmica.—Walker, Bury. 1, Buddleia globosa; 2, Polygonum cuspidatum.—T. F. Gazania Pavonia variegata.—E. F. T. 1, Brassia verrucosa; 2, Bifrenaria Harrisoniae; 3, Crataegus; 4, Erigeron alpinus; 5, Geum ocellatum; 6, Geranium pratense; 7, Clematis Lucie Lemoine.—H. R. Pyrus Aria.—W. H. R. Bryophyllum calycinum.—E. H. O. So far as we can tell from the scrap sent, it is Iris orientalis.—A. L. Doncaster. Muscari comosum monstrosum.—W. M. 1, A Cedar, perhaps the Deodar, we cannot tell from such a scrap; 2, Thuja orientalis var.; 3, Quercus Ilex; 4, not found; 5, not known; 6, Cupressus Lawsoniana; 7, not found; 8, Daphne Laureola; 9, Sequoia sempervirens (Redwood); 10, Veronica Traversii; 11, Retinospora pisifera; 12, Thuja gigantea; 13, Cupressus Lawsoniana var. Six is the largest number we undertake to name at one time, and then only when we can do so consistently with our proper editorial work; we hope you will send a small sum for the Gardeners' Orphan Fund.—A. B. 2, Geranium pratense; 4, Cyrtomium falcatum; 5, Anchusa italica.

SALE OF PLANTS BY GARDENER: Alpha. Without written permission from his employer to do so, a gardener is acting unlawfully in selling plants or garden produce: see a case reported in our issue for August 19, 1899, p. 154.

SELENIPEDIUM FOLIAGE DAMAGED: J. A. The Selenipedium section requires less heat and more air than the Cyrtopodiums, and probably if you remove your plants to another house which is not so moist and warm as that they are now in they will recover. Selenipediums require abundance of water at the roots, especially while growing. Rain-water should always be carefully stored and used for Orchids.

SPOT IN TOMATOS: W. H. C. It is scarcely probable that the iron water-tanks in the Tomato-houses, or the check inflicted on the plant by cold, have anything to do with the disease. Remove all fruits showing the least sign of disease, and burn them immediately, for each is capable, by the spores thrown off, of infecting any number of fruits. Having done this, syringe the plants once a fortnight with the Bordeaux Mixture, slightly diluted from the usual strength recommended for out-of-door use; or use ½ oz. of sulphide of potassium in one gallon of water instead. The fruits must be washed before they are cooked or eaten raw.

VINES: W. S. M., and Velox. The bunches are very badly infested with the spot fungus, Gloeosporium laticolor. Cut and destroy by burning every affected berry, and then syringe the Vines with sulphide of potassium, at the rate of ½ oz. in one gallon of water. Apply this several times at intervals of a week, and afterwards wash the Vines and bunches with clear rain-water.

VINES SUDDENLY COLLAPSING: H. B. P. Before we can determine the cause of the failure of the Vines, we must inspect some roots of the worst Vines, samples of soil, leaves, and shoots. The symptoms point to Phylloxera being the cause of the mischief.

COMMUNICATIONS RECEIVED.—Hurst & Son—Webb & Sons—J. Carter & Co.—G. W.—H. M. E.—Prof. Crie Rennes—J. H. S.—J. C., next week a birch—C. W. D.—W. M.—H. Papworth.—M. T. M.—J. Beesley.—T. W.—Expert.—J. Carter & Co.—E. Webb & Sons.—S. A.—W. Meads.—T. B.—E. Scapellato.—W. B. H.—Le Semaille Horticole.—B. M. T.—Dawson Smith.—T. & Son.—Vine.—J. P. W.—H. R. W.—Enquirer.—F. Ball.—B. H.—G. A.—H. D.—W. R. F.—A. B.—E. T.—H.—E. L.

SPECIMENS RECEIVED WITH THANKS.—H. M. E., very interesting; report later on.

Continued Increase in the Circulation of the "GARDENERS' CHRONICLE."

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

TREBLED.

Advertisers are reminded that the "Chronicle" circulates among GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.



THE

Gardeners' Chronicle

No. 705.—SATURDAY, JUNE 30, 1900.

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THE REV. JOHN LAURENCE, A.M.

(Continued from p. 180.)

THE *Clergyman's Recreation*, *The Gentleman's Recreation*, and *The Fruit-garden Kalendar*, are books complementary the one to the other; and in order to obtain a clear grasp of the teaching of their author, it is essential to take them as a whole. They are written in a diffuse style, and are wanting in method, but they afford evidence of the writer's clear and sound judgment, and his ability to discern between what is worthless and that which is of distinct value.

The work first named is a general treatise on fruit-culture, in which he recommends draining in the case of cold, wet soils; planting in mounds above the surface when necessary, and never to plant deeply; to lift young trees occasionally, in order to curb over luxuriant growth, and to promote a fruitful habit; not to mulch with dung any newly-planted trees, but instead, to cover the ground over the roots with stones or flints. In pruning, we are recommended to encourage a horizontal habit of growth, as contributing in the greatest degree to fruitfulness; to leave strong shoots long, and weakly ones to cut hard back. To thin all kinds of fruit-trees of superfluous even though bearing branches; and in the case of Vines, to excise every weakly shoot or growth. These were mostly novel ideas,

and sound ones. He also recommended placing flagstones or tiles under tree-roots; preferred inoculation (budding) to grafting; thought nurseries for raising stocks of young trees indispensable adjuncts to every garden; recommended bricks as preferable to all other materials for walls, though he did not dislike those composed of earth mixed with straw, with copings of straw; and he considered of all hedges that formed by the Yew to be incomparably the best.

The Gentleman's Recreation is to a great extent an enquiry into the causes of barrenness in fruit-trees, with directions for its cure or prevention, and in the elucidation of these points most of their cultural requirements are discussed. He begins by recommending a piece of ground half an acre in extent to be set apart for a fruit-garden. Walls higher than 8 feet or 9 feet are condemned, though it is conceded that some strong-growing Pears must be allowed more head room; but these he would plant on stables, or the dwelling-house itself. The gravest charges of incapacity are brought against the gardener of the period, in so far as the management of wall-trees was concerned, which sometimes, as he declares, "have no other sort of pruning than what a good pair of shears affords them." To remedy this deplorable condition of things, he recommends fewer trees to be cultivated, but these well; and shows that a greater quantity of high-class fruits may be expected from these than from a large number of neglected ones, the fruit produced being almost worthless in this case. He again very properly condemns the practice of planting deeply and the trees too close together, and mentions having practised root-pruning with a spade, as a means of checking undue vigour and of inducing fruitfulness. The value of "untry'd earth" from ground in pasture, is commended as superior to any other material; and it is demonstrated that borders composed wholly of the above, without admixture of dung, is the most suitable medium in which to plant fruit-trees. For Vines, dung is said to be "poison." Evelyn in *Terra* had previously advocated the use of turf and loam, but with the addition of dung and other materials.

He valued a season such as we experienced in 1899, because "a dry summer naturally disposeth all trees to bear well the following year."

In the introduction to the *Fruit Garden Kalendar*, the sloped Vine-walls at Belvoir are referred to. At that date they were heated by means of flues from May-day to Michaelmas; the fuel, which was coal, costing the modest sum of 2s. or 3s. the waggon-load. On the advice of Switzer, the Duke of Rutland shortly afterwards placed glass sashes in front of the Vines, and thus instituted the first vineries in England. A more common method of producing a rise in temperature, and a cheaper one, was by means of hot linings of stable-manure raised against the back of walls, and this practice is also referred to here. [As is done to this day in some Austrian gardens. Ed.]

In addition to other sound advice, the *Kalendar* recommends that "the stronger the growth of a Plum or Pear, the later ought it to be pruned." Fruit-thinning was neglected, but its observance is here enforced, "because one good Apricot or Peach is worth twenty bad ones." In the May calendar it is noted that over-luxuriant branches ought to be cut back to two inches from the place they shoot from. This practice was based on the fact that the resulting growths would be of an opposite nature, and more inclined to fruit-bearing. Each of

the above treatises have engravings illustrative of the text; selections which the author considered comprised the best varieties of various fruits are also given, and he advocated increasing the number of trees of reliable varieties, rather than the introduction of a greater number of sorts. May we not truly say that Laurence, though now forgotten, gave evidence, these extracts being witness, of having been a very enlightened gardener?

Referring now to *A New System*, it has been already remarked that this, in some of its books, is largely a compilation; at the same time, it is only right to add that the author freely expresses his own opinion when it differs from even the highest authority.

The First book treats of farming, mining, and the arts more particularly connected with rural economy. The Second treats of trees, the matter derived largely from the later editions of the *Silva*; and of shrubs, Bradley, in this instance, being put under contribution. Book the Third is devoted to fruit, and this to a large extent is an amplification of the three earlier works already noticed. There are, moreover, additional chapters descriptive of the best varieties of Peaches, Plums, Apricots, and Cherries. Among these we meet with sorts still held in esteem among cultivators; as, for example, of Peaches, Royal George and Noble; of Nectarines, Elruge, raised in the reign of Charles II. Apricots include Breda, Orange, and Turkey. It is somewhat curious that while of the Plums described none of the varieties are now grown, a short supplementary list includes Red Magnum Bonum, White do., Orleans, Violet, and Green Gage. The only Pears still cultivated of those here described are Jargonelle, Crassane, Swan's Egg, Winter Thorn, and a few baking sorts. The Katherine Pear, which Shakespeare, Shenstone, and other poets have immortalised, is mentioned as being "undeservedly neglected of late years," though it is further remarked that the flavour was displeasing to some palates. An open letter to nurserymen shows that it was difficult at the time of writing to procure trees either true to name, or on stocks proper to the kind.

The kitchen garden with its occupants forms the subject of the Fourth book, and it is not a little startling to find the Melon at this comparatively late period still companying with vegetables. Its cultivation on hot-beds is fully and lucidly described, and note is also made of the author having sown seed in the open ground, from which a plant issued that bore fruit which ripened in September.

On comparison with Bradley (1718), Langley (1728), and Switzer (1728), Laurence emerges in an honourable position. Few writers save he refer to Broccoli, spelled by our author "Brocauli," and which he says was "brought lately from Rome by the present Earl of Burlington." But nearly thirty years previously Evelyn mentions Broccoli, and states it was received from Naples. Laurence, moreover, is the only one of these writers who advises that Cauliflowers be raised on a hotbed in spring, not indeed to supersede sowing in August, but in order to make good the loss of plants in severe winters. Concerning "Sellery," he remarks, "it is a generous sort of Macedonian Parsley, and hath not been long from Italy introduced among us."

A lengthy chapter on "Untry'd Earth" concludes this book. When we take into consideration the fact that writers previous to, as well as those by whom he was succeeded, failed to recognise the invaluable properties of simple turf and loam from old pasture ground as being

the best of all materials for the gardener to use for many crops, the teaching of Mr. Laurence in this respect assumes a greater importance. He, no doubt, refers his readers to Evelyn's *Acetaria* to find corroboration of his views, but on consulting that work, we discover that "virgin" soil formed only part of a compost. Laurence, on the other hand, boldly demonstrates the value of this material without any addition. *R. P. Brotherton.*

(To be continued.)

TREES AND SHRUBS.

FREMONTIA CALIFORNICA.

I WAS pleased to note among hardy shrubs shown by Messrs. J. Veitch & Sons, at the Drill Hall on Tuesday last, some capital sprays of *Fremontia californica*. Although introduced to British gardens so far back as 1851, it is seldom that the plant is observed so fine as on this occasion. The plant is quite hardy in the southern counties, but in the north and in exposed situations anywhere, it should be afforded the protection of a wall. The flowers possess very short peduncles, often exceed 2 inches in diameter, and are of a bright yellow colour, and arranged solitary on the one-year-old wood. Its leaves are of a deep green tint, in shape cordate, and generally five-lobed, downy beneath. The shrub will grow from 8 to 10 feet in height; it will succeed in light sandy-loam, and does fairly well in loam of a heavy texture if well drained. It is easily increased from cuttings taken in the spring, and by seeds which germinate readily if sown when ripe, but in the case of imported seed it is a much slower process. Such a beautiful shrub cannot be too widely known. [It was figured in our columns so long ago as 1859, p. 52.]

CÆSALPINIA JAPONICA.

This is another fine flowering shrub also noted in the same exhibit, which is deserving of notice on account of its beauty, and as being the sole hardy representative of the genus. It first flowered in Britain in 1887, and was figured and described in the *Gardeners' Chronicle*, November 3, 1888, p. 513. Its flowers, which bear a marked resemblance to the *Wistaria*, are borne in clusters, and in colour are of a deep yellow, and as its name implies, it is of Japanese origin. It grows readily in sandy-loam; and may be propagated by means of cuttings, and also seeds which are sometimes obtainable.

GENISTA SAGITTALIS.

A fine plant of this species may be noticed in flower on the Kew rockery. A native of southern Europe, it is thoroughly hardy in this country, and owing to its dwarf habit, it scarcely exceeds 6 inches in height; it is a plant well fitted for the rockery, or the front row of the flower border. Its flowers are disposed in ovate, terminal, leafless spikes, and are yellow in colour. The leaves are ovate, lanceolate in shape, on sagittate or arrow-jointed stems. It is easily grown in almost any soils and situations, and may be increased readily by seeds or cuttings. *E. S., Woking.*

BRITISH FORESTRY.

VI.—THE DENSITY OF FOREST CROPS.

In several of my previous articles, I have drawn special attention to the necessity of growing a forest crop so that the fertility of the soil is preserved, if not increased, and that the most valuable class of timber is produced. The question may therefore be asked, "What is the proper density of a forest crop?" or to put it differently, "What is the most suitable growing space of each tree?" These questions have been answered in vol. ii. of my *Manual of Forestry* (conf. pages 46, 76, and 208 of 2nd edition), but as the subject has lately been discussed in the pages of the *Gardeners' Chronicle*, I may deal once more with it, and

augment to some extent what has been stated in my *Manual*.

The theory of the case is simple enough, and it runs as follows:—"The density of a forest crop should be such that the objects which the proprietor

When trees are grown for economic purposes, matters are different; here a balance must be struck between the preservation of the fertility of the soil and the production of high-class timber in an economic manner. For the former purpose it is



FIG. 135.—*CAMPANULA PERSICIFOLIA* VAR. *MOERHHEIMII*: FLOWERS PURE WHITE, AND FROM 2 TO 3 INCHES IN DIAMETER.

(See Report of Royal Horticultural Society's Meeting, in *Gard. Chron.*, June 23, p. 402.)

has in view are most fully realised." Hence, if the object is to produce landscape beauty, it is in some cases desirable to give to each individual tree sufficient space to grow and spread in a natural way, while in others a group of massed trees may be desirable; no special law can be laid down in this case.

best to keep as dense a crop as possible from start to finish; but such a procedure may seriously interfere with the second object, and it may involve heavy additional expenditure at starting.

In the case of natural regeneration, successfully carried through, as many as 50,000 or 100,000 seed-

lings may be found on an acre, and these are, after a comparatively short lapse of time, reduced to a limited number, the strongest taking the lead, and suppressing the others. In this case, ordinarily no extra expenditure is incurred, and the bountiful regeneration provided by Nature causes the surviving plants to be pushed up by their less-favoured companions, which are destined to die an early death. Similar effects may be produced by sowing large quantities of seed to the acre, but this causes additional expenditure. The latter is further increased if dense planting is attempted; and it is a question for serious consideration, up to what extent dense planting is financially justified.

Even under a system of very dense planting on open ground, the soil must be exposed to the effects of sun and air-currents for a certain number of years, until the young trees close up and

such as draining, fencing, &c.), including cost of plants, costs £4 an acre, it would cost £16 at 2 feet apart. The difference of £12 would be a most serious matter. Assuming even, which is very unlikely, that £2 were recovered by an extra early thinning, this would leave £10 to be accounted for. If the final crop is cut over at the end of 100 years, the £10, at 2½ per cent. compound interest, would have swelled up to £118. This being so, no proprietor would agree to plant at 2 feet, unless some other compensating advantages were proved to exist. As to the suggestion of keeping the expenses of very close planting down by following a rougher and cheaper method of putting in the plants, I must absolutely reject it. Plants should be of the best possible description, and they should be inserted into the ground in such a manner that the root system takes a natural position from the start, so

trees for four species, under the assumption that first-class timber is to be produced, such as is now imported into Britain from the Continent:—

Age of wood, years.	Number of trees to the acre.			
	Norway Spruce.	Beech.	Oak.	Scotch Pine.
20	2800	2803	2700	1900
30	2000	1790	1140	1250
40	1380	1150	040	850
50	1020	770	420	620
60	660	560	310	460
70	490	440	240	360
80	400	380	200	290
90	330	260	160	240
100	290	220	140	200
110	260	190	120	180
120	250	160	105	160

To begin with, I must point out that I have figures for all possible qualities of soil, and that the numbers in the above table refer only to average qualities of soil. For first-class soils, the numbers are smaller, and for inferior soils, larger. Unfortunately, similar figures for Larch are not available, as the Larch disease has played havoc with that species in Germany to such an extent that a sufficient number of woods is not available, to obtain averages of fully-stocked areas. Larch is in Germany now-a-days grown only in mixture with other species, especially with Beech. The above table shows that the following numbers of stems should be found on an acre at twenty years of age:—

Spruce	= 2,800	Oak	= 2,700
Beech	= 2,800	Scotch Pine	= 1,900

and the question before us comes to this:—How many plants should be put to the acre to produce the above numbers of well-grown trees twenty years old? The answer, assuming that equally good plants and planting methods are employed, depends on the rate and method of development of the plants, and the value of early thinnings. Spruce and Beech are at first comparatively slow, and the value of thinnings up to twenty years is small (except where Christmas trees are saleable); hence I do not see the necessity of putting more than 3,000 plants to the acre. In Saxony, indeed, only from 2,400 to 2,600 are considered the most suitable number. Oak has a tendency to spread, and not less than 4,000 plants should be put on an acre, so as to ensure at an early date, a lively struggle upwards. Scotch Pine grows comparatively quickly almost from the beginning, and 2,700 plants to the acre are, according to my experience, quite enough, except where early thinnings, under twenty years old, are saleable, when up to 4,000 may be planted. The above, let it be remembered, refers only to average conditions; in the same degree as these change, the numbers will be different.

The numbers at 120 years are as follows:—

Spruce	= 250	Scotch Pine	= 160
Beech	= 160	Oak	= 105

The following table shows the number of stems to be removed in the periodic thinnings:—

Periods—Years.	No. of trees removed in thinning.			
	Norway Spruce.	Beech.	Oak.	Scotch Pine.
20 to 30 years ...	800	1010	1560	650
30 to 40 " ...	620	640	500	400
40 to 50 " ...	360	380	220	230
50 to 60 " ...	360	210	110	160
60 to 70 " ...	170	120	70	100
70 to 80 " ...	90	110	40	70
80 to 90 " ...	70	70	40	50
90 to 100 " ...	40	40	20	40
100 to 110 " ...	30	30	20	20
110 to 120 " ...	10	30	15	20



FIG. 136.—ODONTOGLOSSUM X ROLFEÆ, WALTON GRANGE VARIETY: FLOWERS CREAMY-WHITE, RICHLY BLOTCHED WITH BRIGHT PURPLE.

(See Report of Royal Horticultural Society's Meeting, in *Gard. Chron.*, June 23, p. 410.)

establish a full canopy over the ground. If that process went on at the rate of an arithmetical progression, the time thus occupied might be calculated in dividing half the planting distance by the annual lateral extension of each plant. Say the planting distance is 4 feet, and the annual spread of each plant 3 inches, the plants would take $\frac{4}{3} = 1\frac{1}{3}$ years to close up. If, on the other hand, the planting distance were 2 feet, the process would occupy only four years. In reality, however, matters are not thus. Whether planting is done at 4 or 2 feet, the plants, as a general rule, make little lateral growth for two, three, or even four years, in fact until they have formed a sufficient root system. Then they begin to grow vigorously, and cover the intermediate space in a comparatively short time. In other words, the difference in the above example is more likely to be two rather than four years. There is, however, a great difference in the cost. Assuming that, at 4 feet apart, the planting per acre (apart from general expenses,

that the interruption of growth caused by the transplanting is as short as possible. It is far preferable to have a smaller number (within limits) of healthy vigorous plants to the acre than a larger number of sickly individuals. I have seen thirty-years' old trees in Scotland blown down, which, having been inserted by notching, had the whole of their root-system still on one side.

The most suitable planting distance depends on many things, which have been discussed in vol. ii. of my *Manual*. The following additional remarks may prove useful: it is well known that observations and measurements on a large scale have been made in all parts of Germany, with a view of bringing out definitely the laws of increment of forest crops. In these investigations, the most profitable number of trees per acre during the different periods of life is of first importance. I have the results of thousands of measurements referring to various species at my disposal, and I subjoin a table giving the most suitable number of

I am far from having exhausted the subject, but I can imagine the Editor calling out to me, "So far, and no further." Hence I must close for to-day, leaving it for a future occasion to resume this interesting chapter of forestry. *W. Schlich, Cooper's Hill, Mafeking Day, 1900.*

PLANT NOTES.

PHLOX SUBULATA NEWRY SEEDLING.

THIS proves to be a very useful plant for spring bedding, flowering earlier than the type, and being of freer growth. In colour it is best described as a shade of very pale lavender, which harmonises admirably with dark violet or purple. In freedom of flowering it cannot be surpassed, as it really forms a mass of bloom sufficiently dense to hide the foliage. It is one of many fine seedlings raised by Mr. T. Smith, of Daisy Hill Nursery, Newry, Ireland, and the raiser of other distinct varieties, including Fairy and Little Dot, two miniature flowers of a pale lavender colour; Stellaris, almost white, with deeply cleft, starry flowers; Lilacina, a beautiful shade of blue; Annulata, pale lilac with a dark eye; and Brightness, dark rose, with a dark crimson eye. *W. H. Divers, Belvoir Castle Gardens.*

CLEMATISES FOR POT-CULTURE.

THERE are few hardy plants which are better adapted for early spring flowering in pots than are some of the varieties of the patens type. These flower from the previous year's growths, and when ripened off early in the autumn, they require very little forcing to have them in flower early in March. From one-year-old plants to large specimens may be grown according to the accommodation that can be given. Where Vines are started early in the year, there is no better place for starting the Clematises, and as the flowers begin to open they may be removed to a cooler house. With good treatment, the same plants will last in good condition for fully a fortnight, and by starting a few plants, and adding to them from time to time, a succession may be kept up throughout the spring. Green-fly is sometimes troublesome, but if fumigated before they are started there will not be much risk of further trouble before they are in flower.

The large specimens often seen at exhibitions are very beautiful, and show what can be done with these hardy plants in pots; but I think the younger plants are even more effective, and well adapted for grouping with other plants, there being few flowering plants of the same shades of colour. One-year-old plants may be grown on single sticks, say about 3½ to 4 feet high, and older ones should have three or more sticks tied together at the tops, and the growths wound round; the tall plants are more effective than those trained round broad balloon-shaped trellises. The same plants may be used for several seasons; but they should be well cared for after they have done flowering, and should be trained as they advance in growth, for after the wood is ripened it is very brittle. If repotted after they have done flowering, they will not require any further potting until the following season. After potting they may be kept under glass until we are quite free from frost and cold winds. During the summer and autumn they will make better growths in the open than they will under glass.

The Clematises are easily propagated by grafting. The earlier in the year this can be done the better. Where large quantities are grown, one-year-old seedlings of *C. vitalba* are used as stocks; but where only a limited number of plants are wanted, roots can be taken from the plants that provide the scions (or grafts); it is the soft young wood that is used—the root may be split, and the graft cut of a wedge-shape. After grafting they should be potted, keeping the union just below the soil: if plunged where there is a good bottom-heat, and a rather cool surface, they will soon unite, and

should be removed as soon as they begin to start into growth; if left only a few days too long, they will make long, spindly growth, which it is most desirable to avoid. After removing them to a cooler house, they may require a little shade for a few days; but after they are hardened off a little, they should be fully exposed to the sun. After they have made a good start they may be potted on into 5-inch pots; using a good rich loamy compost. Plenty of light and air, will ensure short-jointed growths, which will flower well the following season. They should remain in the open until well ripened off in the autumn; but those intended for early flowering should be protected from severe frosts. It is also advisable to avoid excessive moisture at the roots.

Of the varieties belonging to the type referred to above, Albert Victor, Miss Bateman, Mrs. Quilter, Sir Garnet Wolseley, &c., are good examples. *A. H.*

THE WEEK'S WORK.

PLANTS UNDER GLASS.

By T. EDWARDS, Foreman, Royal Plant Gardens, Frogmore.

Zonal Pelargoniums.—These plants if not already repotted into large 48's, should receive attention forthwith. It will be advisable, if hot weather follow, to stand the pots rather close together for a week or two, so that sun may not blacken the stems; but as soon as root-action begins, place them at wider intervals apart, so that each may have the benefit of full exposure to the sun.

Bouvardias, Solanums, Salvias, &c.—These, if planted out, will require regular attention as regards applying water and syringing, or watering overhead during dry weather, until re-established. The shoots of Bouvardias should be stopped as may be required until the beginning of August. Afford these plants an occasional sprinkling of guano over the roots.

Violets for Planting in Frames.—Let the runners be rigorously pinched off, apply a mulch of short dung, and afford water in dry weather. Let the plants be syringed every evening, for if once red-spider is allowed to establish itself, the result will be weakly plants and few flowers. A light sprinkling of soot after a shower of rain acts as a deterrent to this pest, and has a beneficial effect on the plants. Violets in the winter months are as much appreciated as the choicest indoor flowers; but to have them in quantity, the plants must receive proper attention during the previous summer.

Sweet Peas in Pots are now making a beautiful display, and this will continue until out-of-door plants come into flower. They must be afforded manure-water, and every seed-pod should be removed as soon as formed.

Olivias and Eucharis which may have finished their growths, may be removed to a cooler house for resting. Here they may remain for a time, and be afforded less water at the root, but never allowed to become dry. In hot weather a slight shade may be afforded. The first lot of cuttings of *Hydrangea Hortensis* should be potted, as soon as they have formed plenty of roots, into 48's, using a strong loamy soil. The potting should be done firmly, and the plants stood in a pit or frame, which should be kept closed for a few days, with a shade thrown over the plants during sunshine. After the lapse of a week, place the plants out of doors in a sunny spot. These will supply the earliest forced flowers. In order that they may produce fine heads of bloom, the wood must be fully matured. Usually the plants do not make much growth, and only two or three pairs of large leaves; but roots will be abundantly produced, and the energies of the plant concentrated in the formation of the flowers. The plants should remain outside until late in the autumn, a few degrees of frost doing them no harm. A cold pit is a suitable place for the plant in the winter. *Hydrangea Thomas Hogg* succeeds admirably under this kind of treatment, only the flowers being smaller, it is a more effective plant when grown as a bush. For decorative work and grouping, this variety is a valuable plant, its white flowers lasting for several weeks in a fresh looking condition. The variety should be more commonly grown in private gardens than appears to be the case.

Euphorbia pulcherrima.—As soon as the cuttings are well rooted, remove them from the propagating bed, but keep them in the frames, and, after two or three days, shift them into 5-inch pots, using a compost consisting of loam ¾, and peat ¼, with some silver sand; apply no water to the roots, but syringe them several times a day, and shade heavily for a time, then gradually expose them to more sunlight.

THE HARDY FRUIT GARDEN.

By A. WARD, Gardener to F. A. BEVAN, Esq., Trent Park New Barnet

Summer Pruning.—In the warmer parts of the country this operation as applied to pyramids and bushes, and espaliers of Apples, Pears, and Plums, may be undertaken forthwith, but delaying it for a fortnight if vegetation is backward. Summer pruning, when carried out on common-sense principles, has a beneficial effect both on the crop of fruit and the welfare of the trees; moreover, time and labour are spared in the winter months, there being less pruning required then. The summer pruning of established trees consists of cutting back to five or six leaves all young side-shoots, leaving those at the end of the branch—styled the leaders—from one-third to nearly full length, according to the amount of space available. When the shoots are densely placed on the spurs, the weakest should be pulled out. An exception to this kind of treatment should be made in the case of varieties which make young shoots with a single fruit-bud at the points. Such shoots are, however, easily ascertained, being usually of no great length, and the points instead of being in a soft growing condition are sturdy looking. These should therefore be left now, and shortened after they have borne fruit. On young trees a sufficient number of shoots to form the main branches should be retained, leaving them at full length for the present, and cutting off the tip in about six weeks' time.

Wall-trees.—Trees of the Pear, Plum, and Apple, growing on walls should be treated in like manner, and with respect to young trees of these fruits, a shoot or shoots should be left, according as the method of training adopted may demand, to ensure the further extension of the trees. If there are not many trees, the pruner may prune them, and also fasten the young shoots at the same time. When the trees are numerous, it is better that one man should carry out the pruning and another the nailing or tying.

Peaches and Apricots.—Let close attention be paid to securing the young growths betimes, as the closer they are kept to the face of the wall, the more easy it is to free them of insects by syringing. All the lateral shoots should be pinched to one leaf, and all shoots that have reached their limits should have the points nipped off. In the absence of heavy rains, examine the borders fortnightly, affording water liberally whenever it is found to be required. If the crop of fruit on any tree has been sufficiently thinned, nothing further in this direction is needed until the stoning stage is passed; but if the numbers left are thought to be still too great, further thinning may forthwith take place. The trees now being clean, they can be kept so by frequently syringing or washing them with the hose-pipe or engine; it is, however, good practice to use soap-suds in lieu of clear water once a week up to the time the fruits commence to swell finally. The Apricot-trees should be afforded the same sort of attention. After stoning is completed, if the border is found to be dryish, the roots should be afforded artificial manure suited to the particular kind of fruit.

Bushes of Morello Cherries.—With us this variety has set very heavy crops of fruit; and as soon as the stoning stage is past, the points of the young shoots should be pinched out, and a mulch of half-decayed manure applied if this has not been already afforded. If large fruits are required, some amount of thinning will have to be practised, and diluted farmyard liquid-manure applied to the soil. As fruit on bushes ripens earlier than that on wall-trees, the nets now in use over the early dessert Cherries should be transferred to the Morellos, when the crops of the former are consumed.

General work.—The showery weather has caused weeds to grow apace, and the hoes will have to be kept unceasingly at work whenever possible, and hand-weeding carried out in showery weather. Heavily cropped young Apple and Pear-trees should have the fruits thinned, and a mulch placed over

the roots. Do not neglect to watch for any appearance of American-blight, and deal with affected trees as soon as it is observed. Proceed with the preparation for Strawberry layering as opportunities offer.

THE KITCHEN GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Mulching.—Up to the present the weather has been favourable for the growth of vegetables, but with July and August it is to be expected that spells of dry and hot weather will set in. It is very necessary on light soils to apply mulchings of stable-manure early next month. On heavy, cold soils, mulching does a greater amount of harm to crops than good. Soon after rain is the best time to mulch, as by so doing then, an even degree of moisture is maintained in the soil. Cow-manure may be mixed with that from the stables, if the latter be scarce. The manure used should always be well decayed. On heavy land, hoeing should be freely practised; and even on light soils this will have a good effect when no mulching is afforded. Roofing-tiles placed on either side of rows of Peas and Beans help to retain moisture in the soil.

Asparagus.—Our Asparagus-beds at Westonbirt are top-dressed early in the month of March, and this year the produce has been very fine, and doubtless gardeners usually find this sort of treatment gives equally satisfactory results. Cutting should now cease on most of the beds, or the strength of the plants will be impaired, and the next crop suffer in consequence. Plantations that have not been top-dressed this year should now receive attention in this respect, agricultural salt, the so-called guano, or soot affording a suitable dressing. The plants from the April sowing will require to be severely thinned, not leaving them nearer than 6 inches apart. The beds of one-year-old plants, and those planted this year, should be afforded a mulching or the application of liquid-manure, Asparagus being soon injuriously affected by drought. A reference to my Calendars in March will afford the reader an idea of the sort of manures suitable to the different kinds of soil.

Savoy.—In showery weather transplant early Savoy from the seed or nursebed, on land in good heart, and possessing an open position; but as in most gardens such sites are not many at this part of the season, and the first batch may be planted on a border facing north. If varieties grown are dwarf ones, the rows may be arranged at 18 inches, and the plants in them at 1 foot apart; whereas, for Carter's Giant Queen and Drumhead, a distance of 2 feet between the rows, and 1½ ft. between the plants, are suitable distances at which to plant. Water should be liberally applied in dry weather.

Chou de Burghley.—Plants raised from seed sown about the end of the month of March may now be planted on highly-manured land. Light soils should always be made firm by treading them before planting any of the Brassicas. Plant in rows 2½ feet by 2 feet.

Broad Beans.—When most of the flowers are set, the stems should be topped, and wooden stakes driven in at 9 feet apart on either side of the rows, fastening soft twine to them, in order to support the plants.

Seakale.—Where several shoots spring from one crown, let them be reduced to two or three of the stronger ones. Remove all flower-stalks.

THE ORCHID HOUSE.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGGS, Bart., Clare Lawn, East Sheen, S.W.

Miltonia vexillaria.—As soon as these plants pass out of bloom a resting period becomes desirable, the plants being placed for this purpose in a cool, shady house, and well ventilated, the potting materials being kept in a moderately dry state. It is the practice with many good Orchid cultivators to repot the plants, or renew the potting materials soon after the plants have flowered, but I prefer to do this just as the flower-spikes become visible, a time when the new roots emerge from the base of the partially-developed pseudo-bulbs. The mountain forms, *M. v. rubellum*, *M. v. Klabochorum*, *M. v. Leopoldi*, are just now coming into flower, and should not be kept so dry as the others for the present.

Lelia purpurata.—This plant having finished flowering, should be afforded no water until shrivel-

ing appears imminent, and this kind of treatment should be pursued throughout the summer months. At this season repotting and surfacing may be carried out safely. I may here remark that growth begun during the summer seldom produces flower-sheaths, whilst that which comes later seldom fails to flower; hence the propriety of inducing the plants to rest at this season. The summer affords the opportunity to clear the plants of the small white scale that is apt to infest them about the base of the pseudo-bulbs. For this purpose, soft-soap dissolved in tepid rain-water, and applied with a moderately stiff paint-brush, should be employed.

Cattleya Aclandiae.—Most gardeners find this species a very unsatisfactory one to deal with under ordinary conditions; still, when its needs are well understood, there is no more difficulty attending its cultivation than with *C. Schilleriana*. It is producing flowers at the present time on newly-made pseudo-bulbs, and roots may be expected to push immediately afterwards. It is at this date that repotting, &c., may take place with safety. The plant succeeds in a shallow open pot or basket provided with ample drainage, and a very small quantity of moisture-holding material placed beneath the plant. Suspended in a warm, light position near the glass in a Cattleya-house, copiously afforded water when rooting freely, and hardly any water at other times, the plant may be maintained in a healthy condition for many years. A plant fastened to a bare raft or a bit of board is apt to become too dry at times when abundance of moisture is really needed; and the difficulty of handling such contrivances often causes the loss of young growths.

Manure-water.—That manure in a mild form can be applied to Orchids with advantage is now generally admitted, but what manure is best for them, and how it may be applied, remain to be discovered. Beyond chemical manures, nothing at present known is safer or more beneficial to Orchids than farmyard manure-water, pouring it beneath the stages and on the paths of the Orchid-houses in the evening about twice a week. When this form of manure is used on the plants themselves, it should be made by putting into a sack equal weights of cow and horse-dung, and immersing the sack in a large tub or tank filled with rain-water. By this method, the cultivator is able to gauge its strength roughly, and the water is clear and free from deposit. This liquid should not be applied to true epiphytal species, but to such robust, terrestrial Orchids as *Phaius*, *Cymbidiums*, *Sobralias*, &c. Soot is a useful aid to the Orchid cultivator, but here we have more than we need in the air; however, a small bag of soot sunk in a water-tank, and given an occasional stir round, is a useful vehicle for supplying ammonia.

THE FLOWER GARDEN.

By J. BENSOW, Gardener to the Earl of Ilchester, Abbotsbury Castle, Dorsetshire.

Narcissus.—When the leaves of these bulbs have begun to take on a yellow tinge, it is a sign that growth has quite ceased, and that the bulbs may be safely lifted. Clumps which have remained in the soil for several years exhaust the soil, especially in the centre of the clumps, and such are those that nearly always should be taken up and divided in the fourth year. In lifting, those which flower the earliest should be the first to be taken, viz., the Polyanthus section. In lifting, named varieties should be placed in separate trays or seed-pans, and correctly labelled, in order to prevent error. When a clump is taken up, the bulbs should be freed from soil and rubbish, and aggregations of bulbs broken, and be placed to ripen in a light, airy house or shed, turning them over occasionally. By the end of the month of July the various species and varieties may be replanted. The weaker bulbs should be planted by themselves in the kitchen or reserve garden, in order to gain strength. If a bed is to be planted, let it be well dressed with completely decayed manure, putting this in the bottom of the trenches, and not where the roots will come in contact within half a year. Having dug the ground, let drills be drawn with a big hoe to a depth of 3 to 4 inches, and the bulbs placed therein at 5 inches apart. At this depth no injury will occur from hoeing the land. Where clumps are planted, excavations must be made, and the rotten dung, if any be required, put at the bottom of the holes, the soil thrown back into the hole, and made quite firm. If a soil is very heavy,

road-scrappings may be freely strewn into the drills. The earliest Narcissus to flower are Polyanthus, Ard Righ, Soleil d'Or, Paper-white, Golden Spur, gloriosus; then come *N. obvallaris*, *rugilobus*, and hybrids of *incomparabilis*, *biflorus*, *poeticus*, and the double variety. These varieties may be mixed in planting, or each may be kept in separate patches or drills. The separate method of planting being the better one on account of storing and planting.

Rhododendrons.—When flowering is over, remove with a sharp budding-knife, or the finger and thumb, the bunches of seed vessels. The plants if of a loose habit of growth, may at this season have the points of the longest shoots pinched out so far as the last new leaf; and be careful to remove all the shoots issuing from the stocks of grafted plants.

Roses.—Newly-planted Roses should be examined, and all dried shoots removed entirely, and weakly shoots shortened back to healthy strong shoots or buds. It is not advisable to allow many flowers to form on transplanted bushes, but to encourage good growth instead, and thus guarantee a good display of flowers later on. Established plants may still have the weak buds and blind shoots removed. When flower-buds are being selected for the production of extra fine flowers, these should have neatly-painted flat stakes placed to them in order to support the shoots, the latter being tied to these in such a manner as not to injure the leaves or the flowers. Roses on the Manetti, Briar, and other stocks should be carefully examined for robber growths, these being torn off by a sharp jerk, a little of the soil being removed so as to help in the operation.

FRUITS UNDER GLASS.

By J. ROBERTS, Gardener to the Duke of Portland, Welbeck Abbey, Worksop.

Peaches and Nectarines.—The trees in the early-house should be gradually inured to free ventilation night and day so soon as the crop of fruit is consumed, every precaution being taken at the same time to maintain healthy foliage to the end of the season. To secure this end, the borders should be afforded water every week, and if liquid-manure be given alternately with clear water, the trees will be greatly assisted in forming flower-buds. In addition, the foliage should be kept clean by affording it frequent washing with the garden-engine. Let all superfluous growths be removed, and the young wood exposed fully to sunshine. A mulching of half-decayed manure will help to keep the soil in a regularly moist state. Peach-trees on which fruits are ripening should be freely ventilated, and every fruit exposed to the sunlight, so as to ensure good colour and flavour. A free admission of air during the night, when the outside temperature stands above 60°, will also do good, as Peaches ripened under cool conditions generally swell to the fullest size, and are the best flavoured.

Late Peach-houses.—The fruit in these houses, having passed the stoning stage, a final thinning will have become necessary, and as late ripening varieties of the Peach are mostly large fruited, the thinning may be more severe than that of the early and mid-season varieties. Let the crowding of the young shoots be avoided, or the due ripening of the wood will be difficult of accomplishment. Afford water to the borders, and keep the houses open excepting during rough weather.

Pineapples.—If the bottom heat in the beds made in the spring of fermenting materials is declining, and the fires are not so much in use, an opportunity should be taken to lift and replunge them after adding materials, fresh tanner's bark or well preserved tree leaves, to the beds. This will enable the plants to make progress until the end of the season. At the same time the removal of the old plants from which the fruit has been cut will afford space for the growth of the young stock of plants overcrowding at this season, being apt to bring the leaves of the plants into a drawn condition not favourable to the production of fine fruits. Let the fruiting-houses be re-filled with the strongest and best established plants, and secure a good supply of suckers at this season, potting them in light fibry loam and bone-meal, and get them well rooted before winter. Keep them close and shaded for a short time after potting, and dew them over with the syringe occasionally. Old stools required to produce stock may have the foliage shortened to half its length, and then be kept in strong moist heat until new growth commences. The temperature during warm night should be kept about 75°, and 85° on sunny days running it up 10° higher at closing-time.

APPOINTMENTS FOR JULY.

TUESDAY, JULY 3	Royal Horticultural Society's Committee, and Show of Roses. Gloucester Rose Show.
WEDNESDAY, JULY 4	Hanley (Staffs.) Horticultural Fête (3 days). Rose and Horticultural Shows at Beigate, Hereford, Croydon, Farnham, Boston (Linc.) (2 days). Ipswich, Lee (Kent), Ealing, and Tunbridge Wells.
THURSDAY, JULY 5	Royal Horticultural Society of Ireland, Rose and Horticultural Show. Rose and Begonia Exhibition at Bath. Rose and Horticultural Shows at Sutton and Norwich.
SATURDAY, JULY 7	National Rose Society's Show at the Crystal Palace, London. Wood Green Horticultural Society's Show.
TUESDAY, JULY 10	Wolverhampton Horticultural Sh. (8 days). Rose Show at Harrow.
WEDNESDAY, JULY 11	Rose and Horticultural Shows at Stevenage and Brockham.
THURSDAY, JULY 12	Rose and Horticultural Shows at Cambridge, Brentwood, Wimbledon, Eltham, Salterhebble, and Woodbridge.
FRIDAY, JULY 13	Rose Show at Ulverston.
SATURDAY, JULY 14	Rose and Horticultural Shows at Manchester and New Brighton.
TUESDAY, JULY 17	Royal Horticultural Society's Committee. Carlisle Rose Show. Paris Exhibition (temporary Show).
WEDNESDAY, JULY 18	Cardiff Horticultural Show (2 days). National Rose Society's Exhibition at Birmingham.
THURSDAY, JULY 19	Cardiff Horticultural Society's Show (2 days).
FRIDAY, JULY 20	Bicentenary Exhibition of Sweet Peas, at the Crystal Palace.
SATURDAY, JULY 21	Rose Show at Newton Mearns.
TUESDAY, JULY 24	Tibshelf Rose Show.
WEDNESDAY, JULY 25	National Carnation and Picotee Society's Exhibition, at Crystal Palace. Durham, Northumberland, and Newcastle Horticultural Society's Show, at Newcastle (3 days).
THURSDAY, JULY 26	Rose and Horticultural Show at Bedale.
TUESDAY, JULY 31	Royal Horticultural Society's Committee, Meeting.

SALES FOR THE ENSUING WEEK.

FRIDAY, JULY 6.—Imported and Established Orchids, at Protheroe & Morris' Rooms.
SATURDAY, JULY 7.—Unreserved Sale of Greenhouse and Herbaceous Plants, at Welford's Nurseries, Lansdowne Road, South Lambeth, by Protheroe & Morris, at 12.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—63°.

ACTUAL TEMPERATURES:—

LONDON.—June 27 (6 P.M.): Max. 68°; Min. 51°.

PROVINCES.—June 27 (6 P.M.): Max. 59°, off Cromer; Min., 54°, off Peterhead.

The Royal Horticultural Society in the Provinces. AN interesting experiment took place this week, when the committees of the Royal Horticultural Society held their respective meetings in connection with the exhibition of the Richmond Horticultural Society. It is difficult to see what direct benefits to either Society will result from this transference of the business of the parent society from headquarters to a pleasant suburban town; but indirectly the benefits may eventually be great. For one thing, it will in a measure serve to counteract that mischievous notion that the provinces are somehow neglected by the Royal Horticultural Society. Richmond, it is true, is not in the provinces; but that does not affect the principle. We often hear disparaging remarks made in the provinces about the Society; but the complaints made are vague and inarticulate. If they took some tangible shape, and were properly formulated, we are sure the Council would do all in its power to remedy the grievances, if such really exist, which we greatly doubt. The Society must have its headquarters somewhere, and London is naturally the most convenient place. Of course, our North of England friends would like it

nearer to them, and our Scottish colleagues would prefer to see it established in Edinburgh or Glasgow. If it were, then the same complaints would arise in the south.

As this matter of locality cannot be altered, it may be worth while considering what the Society has done for the provinces, and next to enquire how far the provinces avail themselves of the opportunities and advantages offered them by the National Society. Many of us remember the series of provincial shows held by the Society in various large towns up and down the country. The shows were excellent, the Councils of the day, with the President at their head, spared no pains, and in some cases they were well supported by the local committees and by energetic, individual friends. Yet these shows were, almost all of them, financial failures, and it is difficult to trace much permanent benefit from them, either to the parent Society on the one hand, or to the local associations on the other. It is still more difficult to trace any influence on horticulture generally.

Latterly the plan has been adopted of deputing a certain number of members of the Council to visit some of the more important local shows, as that at Truro, York, and other places. It is not a small thing for the President and Council, most of whom are business men, to have to pay such visits, in the height of the season, though as might have been expected, their welcome has been hearty. These are direct methods which have been tried by the Society in order to strengthen the bonds between the metropolitan and the provincial horticulturists. But here again, it is difficult to trace any special benefit to horticulture.

Turning to other means open to the Fellows without restriction of locality, we may mention the several Conferences and Congresses that have been held of late years, and which have been of the highest value, not only to the Fellows, whether local or provincial, but to horticulture generally, and not to British horticulture only; but, as in the case of the Hybridisation Conference last year, to the science and to the art of gardening throughout the civilised world. Should our provincial friends raise the objection that distance prevents them from availing themselves of these important gatherings, they can still peruse at their leisure the excellent report of the proceedings in the *Journal* of the Society, now, and for several years, issued regularly. Many of these volumes, such as that relating to the Apple Congress, to Conifers, to the action of Fog and of Frost, to Hybrids, &c., are standard books of permanent value—of far more value, in fact, than the records of awards and prizes, and other matter of merely ephemeral or restricted nature. The provincial Fellow gets more than the value of his subscription in these reports, and he cannot complain that their contents are solely of metropolitan interest. They are, in fact, national; and often, as we have said, cosmopolitan in their interest.

There is another means by which it is sought to bind the provincial societies to the parent body, and that is by the system of affiliation. And here we may ask, what use do the affiliated societies make of the privileges freely accorded to them? Surely they do not consider the bestowal of an occasional medal on the part of the Royal Horticultural Society as adequate.

Why is it that we so seldom see members of these affiliated societies taking part officially in the work of the Committees? and yet we are certain their presence would be hailed with gratification, and their suggestions would

receive the attention they merited at the hands of the Council.

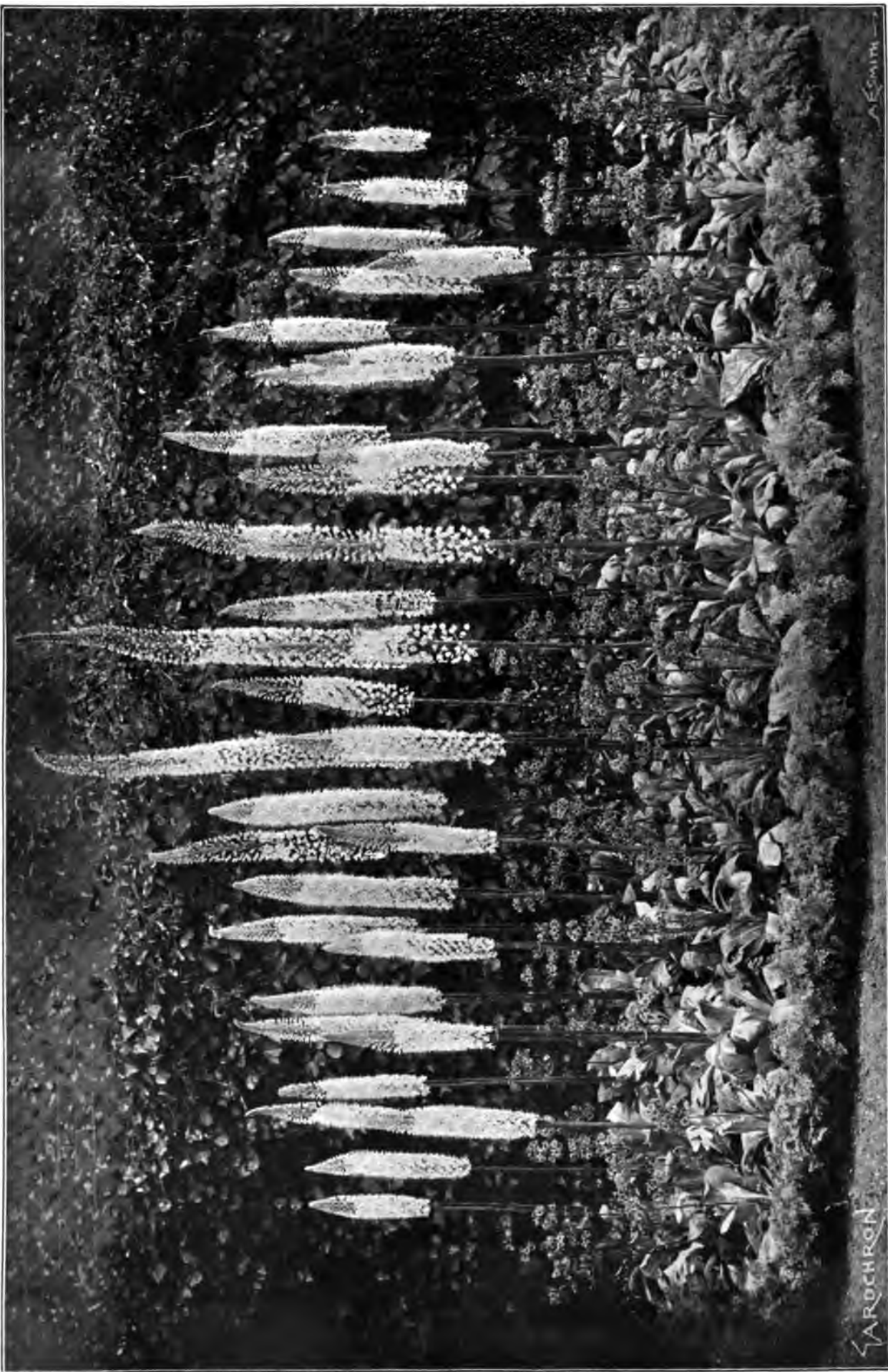
Again, we scarcely remember a single instance where an affiliated society, as such, has contributed anything whatever to the *Journal* of the Society, or to its Committees. Nor do they, as a rule, avail themselves of the information they might derive on many practical and scientific points from the Society's referees.

We mention these matters to show that if the provincial Fellows and provincial Societies do not avail themselves of their privileges, they have no cause to grumble at the Society. We venture to suggest that it might be desirable if the Council were to set apart at least one day in each year—say, about the time of the Temple Show—for the formal reception of delegates from the affiliated societies, and for the public discussion of any points of moment that might arise. The delegates, for one thing, would learn what they now mostly ignore—that flower-shows and prizes do not constitute the be-all and end-all of horticulture.

Since the above was written we have received the subjoined letter from the secretary of the Royal Horticultural Society, advocating the establishment of a "referendum" on special and exceptional occasions, for the sake of ascertaining the opinion of the provincial Fellows. Our only objection to this is, that by far the largest proportion of the local Fellows will know nothing of the merits of the case on which they will be asked to vote.

EREMURUS (Supplement).—This is a genus of plants closely allied to the Asphodels, but having the stamens cylindrical, not flattened, and with smooth seeds. They are natives of the Caucasus, Asia Minor, and some parts of the Himalayas. The roots are fasciculate, the leaves linear. How effective they are in the back rows of an herbaceous border may be judged from our supplementary illustration, which represents a group exhibited by Messrs. JAMES VEITCH & SONS of Chelsea at the Drill Hall in the course of the present summer. The ground-work from which the tall spikes of the *Eremurus* sprang consisted of *Primula japonica* in full bloom. We should hardly have considered this a desirable association; nevertheless, it was very effective. There are about twenty species, the best known in British gardens being *E. robustus*, with rose-coloured flowers; *E. himalaicus*, *E. Bungei*, with yellow flowers; *E. Elwesianus* (figured at p. 137 of our volume for 1898), and *E. spectabilis*. They are easily cultivated as herbaceous perennials, and propagated by division.

ROYAL HORTICULTURAL SOCIETY'S PROXY VOTING.—We have received the following unofficial note from the secretary, which is worthy the attention of the Fellows: "A very urgent appeal has been made to me in my official capacity as secretary of the Royal Horticultural Society, by certain of the Fellows, who are most anxious to show their loyalty to the Council by supporting them in their proposals with regard to the bye-laws of the society, but are unable to do so entirely so long as Nos. 45, 46, 47, are retained. They have no objection whatever, many of them cordially approve of, the Swiss principle of a referendum "Aye" or "Nay," on any important proposal, but they dislike a general proxy. At this late date I have no time or authority to call the council together to consider this point. I am therefore writing quite unofficially to say that I am confident that the council will accept a permissive referendum on points they think to be vital to the society's welfare. The council, I am convinced, have no desire for a general proxy, but they feel, and feel very strongly, that as the society has recently been increased by such an enormous accession of Fellows living at a great distance from London, it is unjust to confine



GROUP OF EREMURUS EXHIBITED AT THE R.H.S. JUNE 5, BY MESSRS. J. VEITCH & SONS. THE GROUND COVERED BY PRIMULA JAPONICA.

SUPPLEMENT TO THE GARDENERS' CHRONICLE.

CULTURE. It is recommended that, while a very early start is made, the plants should be kept in a cool, airy place, and not exposed to the sun. They should be watered freely, and the soil should be kept moist. The plants should be kept in a cool, airy place, and not exposed to the sun. They should be watered freely, and the soil should be kept moist.

the whole governing power of the society to Fellows living in or near London, which would practically be the case if no referendum on important points is permitted. The Council would, I am sure, accept the three following bye-laws in the place of the three whose numbers they bear, together with the form for a referendum, which I have drafted. I have written this letter solely in order that Fellows may have time to consider the matter, and to induce country Fellows to come up to the meeting of July 3, and support a measure for their own enfranchisement. — W. WILKS, *Shirley Vicarage, Croydon, June 25, 1900.*

ALTERNATIVE BYE-LAWS.

45. With respect to any resolution brought before a general meeting, and considered by the Council to be of vital importance to the welfare of the Society, the Council shall have power to adjourn the meeting for not more than twenty-eight days, in order to refer the decision on such resolution to the whole body of the Fellows, and to take a poll of the Fellows "for" or "against" it.

46. In the event of any resolution being referred for decision from a general meeting to the whole body of Fellows, the Council shall, within ten days after such meeting, issue by post to every Fellow of the Society residing in the United Kingdom a copy of the resolution thus referred, together with the necessary form (Form D), for voting for or against it. But the Council shall not therewith, or otherwise at the expense of the Society, send any communication tending to influence the vote of the Fellows.

47. When any resolution is referred from a general meeting to the whole body of Fellows for decision, the general meeting shall, before it adjourn, be requested by the Chairman to nominate four scrutineers of the poll, whose duty shall be to examine and classify the votes of the Fellows, and report the result to the adjourned general meeting. Two of the scrutineers shall be chosen from amongst the members of the Council, and two shall be Fellows holding no official position in the Society. In a poll every Fellow shall have one vote, and one only.

FORM D.

Form to be used in event of the Council considering any resolution submitted to a General Meeting to be of sufficient importance to require a poll of the Fellows to be taken to decide it.

At a General Meeting of the Society held on (date) the following resolution was proposed and seconded, viz.,

..... (here insert the resolution).

The Council considering this to be a matter of vital importance to the welfare of the Society, and acting under Bye-laws 45, 46, 47, adjourned the meeting till (hour) on (date) at (place), in order that meanwhile a poll of the Fellows may be taken.

You are requested to sign your name in one or other of the two blank spaces below, and to return this paper entire to The Scrutineers, Royal Horticultural Society's Office.

I DESIRE TO VOTE FOR THE ABOVE RESOLUTION. Fellow's Signature. }	I DESIRE TO VOTE AGAINST THE ABOVE RESOLUTION. Fellow's Signature. }
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This paper is issued by order of the Council, and is sent by post to every Fellow residing in the United Kingdom.

Secretary.

N.B.—Nothing is to be written on this paper but the Fellow's signature only.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Committees will be held on Tuesday, July 3, in the Drill Hall, James Street, Westminster, when special prizes will be offered for Roses. At 3 o'clock a lecture on "Bedding, Hedge, and Pillar Roses," will be given by Mr. GEORGE PAUL, V.M.H.; and at 4 p.m. a special general meeting will be held to consider the new byelaws above referred to.

NATIONAL CHRYSANTHEMUM SOCIETY.—The annual meeting of the members and friends of this Society will take place on Wednesday, July 25, and be inclusive of a visit to Halton, Tring, the residence of ALFRED C. DE ROTHSCHILD, Esq. The members will travel to Wendover by Metropolitan Railway.

THE HORTICULTURAL CLUB.—The last monthly dinner and conversation for the season took place on Tuesday, the 19th inst., the chair was occupied by Sir J. T. D. LLEWELYN, Bt., M.P. The subject discussed was the "Clematis," opened by a paper by Mr. A. G. JACKMAN, who was unfortunately not able to attend through indisposition. The paper was read by Mr. GEO.

BUNYARD, and an interesting discussion followed; there were present, the Rev. W. WILKS, Messrs. H. SELFE LEONARD, HARRY J. VEITCH, S. A. DE GRAAFF, R. BARR, NOTCUTT, PINCHES, J. ASSBEE, G. BUNYARD, and J. WALKER.

NATIONAL CARNATION AND PICOTEE SOCIETY.—The annual exhibition of this Society will be held at the Crystal Palace, Sydenham, on Wednesday, July 25. The Carnations and Picotees give promise of an exceptionally good bloom this season, and a very large display is anticipated. The schedule is a very liberal one, all classes of exhibitors being provided for. Four Silver Cups, and about £300 being offered in prizes. The Hon. Sec. is T. E. HENWOOD, 16, Hamilton Road, Reading, who will gladly answer any enquiries respecting the Society.

PEACHES IN GEORGIA, U.S.A.—The Hale Peach Orchard in Georgia has, we are informed, about 300,000 trees; one block of 60,000 Alberts is the heaviest loaded of all. The proprietor, Mr. HALE, estimates that 8,000 car-loads of Peaches will be shipped out of Georgia this year.

MULTIFORM IVY.—An obliging correspondent sends us a series of leaves taken from one plant. The leaves vary in shape from orbicular, through oblong to palmate. Some are entire, and others slightly lobed at the base, with rounded or pointed lobes spreading or overlapping. Some are cordate, and one is wedge-shaped at the base, with five narrow-pointed leaves. As all these forms occur on one and the same plant, it does not seem at all desirable to name each one, or even to try and refer them to the forms described and figured by the late Mr. SHIRLEY HIBBERD.

THE REGENT'S PARK BOTANICAL GARDENS.

—In the House of Commons lately, Mr. HANBURY, on behalf of the Commissioners of Woods and Forests, said:—"In the case of the Botanical Gardens, the lease would come to an end very shortly—next year or the year after. That, he thought, would afford an opportunity of seeing that the public had more interest in the institution than they have had in the past. Hitherto the gardens had been altogether closed to the public, but he thought it would be only fair that in any new lease granted there should be a condition requiring that the public might be admitted—of course, on reasonable payment—upon two or three days each week." When is the Royal Horticultural Society, whose aims are so much higher, and whose claims are so much greater, to receive some Government recognition?

THE KENT FRUIT CROP.—The annual Kentish Cherry sales concluded recently. On the whole, the prices have been good, considering the heavy nature of the crop. In some districts competition was slow, owing to the scarcity of labour, the war, and brick-making having laid heavy toll on the male labour in the Sittingbourne district, so that buyers are handicapped. The trucking of the fruit is another difficulty. At a meeting of the Kent Fruit-growers' Association, a proposal to put on a special goods train daily, to leave Canterbury at noon and call at all stations up to Rainham, was warmly approved. This will enable the Railway Company to deal with the rush of fruit traffic more effectively. Cherries made over £30 an acre; and on the Nouds Estate, Lynstead, the Cherries made £1608, as against £1230 last year. Cherries and Strawberries are now being raised to London and the North in large quantities, and a glut of Cherries this season is probable.

FLOWERS IN SEASON.—From Mr. ANTHONY WATERER come branches in full bloom of the old *Cladrastis tinctoria*, better known as *Virgilia lutea*. The bold, pinnate foliage, and racemes of white, pea-shaped blossoms, are very attractive. *Chionanthus virginica* is also very beautiful with its racemes of white flowers, with long, linear petals. In the same consignment are various cones of *Pseudotsuga Douglasii* (the Douglas Fir), showing

remarkable variations in the colour of the cone and the shape of the bracts. To these we shall probably refer later on. Mr. SCAPLEBORN sends a flower-head of *Pyrethrum* which has produced small secondary heads surrounding the central one, as in the Hen-and-Chicken Daisy. Mr. DENNIS, Hopedene, Dorking, sends a flower of *Gloxinia* with supplementary petals on the outside of the original corolla; this is not unusual. Formerly there was a race in which this condition was so perfectly developed that the flowers resembled Hose-in-Hose Primroses, but it seems to have disappeared. In the supplementary petals, the coloration is outside, not inside as usual.

SCHOOL BOARD FOR LONDON.—We have official information that Mr. ROBERT HUNT, assistant in the plant department, Hyde Park and Kensington Gardens, has been appointed Assistant Botanical Collector to the School Board for London.

TOMATO DISEASES.—There are various diseases, all of which have been repeatedly described and figured in our columns: 1, the leaf-rust, *Cladosporium fulvum*, chiefly attacks the leaves, which look as if dusted with brown powder; 2, the Tomato-rot, which is identical with the Potato disease; 3, the Black-rot, attacking the fruit chiefly, but not entirely—it often forms circular patches around the style; 4, the sleeping disease, attacking the leaves which become flaccid and droop. Bordeaux Mixture, or potassium sulphide $\frac{1}{4}$ oz. to a gallon of water sprayed on the plants will be of service, if carried out effectively at an early stage of growth, but spraying will have no effect on No. 4. All these diseases are greatly favoured by growing so many plants of the same species in the same house. Under such circumstances the disease is certain to spread from one plant to another, hence the necessity of up-rooting and burning all affected plants. As even now many people seem not to know of the Bordeaux Mixture, we add the proportions: copper sulphate 4 lb., lime unslaked 3 lb., water 40 gallons. Place the copper sulphate in a coarse-sacking bag, and suspend it in 6 gallons of cold water, in a wooden tub with no iron about it. Slake the lime and add it to the copper solution gradually. Stir freely with a wooden stick, and add the remainder of the water, then let it settle. It is best to use more rather than less lime, so that the foliage may not be injured by the spraying. It is as well to try the effect on the leaves before using it extensively, as then the mixture can be diluted if necessary. Two or three applications at intervals are better than a strong dose at one time. Less troublesome to make, and in some cases equally effectual, is a mixture consisting of liver-of-sulphur 3 oz., water 10 gallons.

A ROYAL PURVEYOR.—Mr. WM. BAYLOR HARTLAND, nurseryman and seedsman, of Cork, has been appointed purveyor of seeds, &c., in Ireland to Her Majesty the QUEEN. The firm of Hartland is one of the oldest in Ireland, dating back to 1774.

THE WEATHER IN WEST HERTS.

A WEEK of cool and showery weather. The ground temperatures have fallen, and are at the present time rather lower than is seasonable. Rain has fallen during the week to the total depth of nearly an inch, but no rain-water has as yet passed through the turfed soil percolation gauge for nearly nine weeks. On the 25th, however, a small quantity came through the bare soil gauge—the first measureable amount that has been recorded through this gauge for a month. On midsummer-day the only Hybrid Perpetual Roses in my garden which had an expanded bloom on them were A. K. Williams, Earl of Pembroke, and Madame Gabrielle Luizet: the only Hybrid Teas, Captain Christy, La France, Lady Mary Fitzwilliam, and Mrs. W. J. Grant; and the only Teas, Hon. Edith Gifford, Madame Hoste, Mrs. E. Mawley, Souvenir de S. A. Prince, Souvenir d'Un Ami, and Rubens. E. M., Berkhamsted, June 26.

HOME CORRESPONDENCE.

THE ROYAL HORTICULTURAL SOCIETY'S BYE-LAWS.—As I am doubtful whether I shall be able to attend the meeting of the Society on July 3, I wish to support your views as far as possible with regard to voting by proxy. I believe that this practice is not adopted by any of the other London scientific societies, several of which I am a member. I do not know that anything has occurred since the proposal was vetoed by the Horticultural Society some years ago to make the change desirable; and if proxy voting had been allowed at the last General Meeting it is quite possible that a totally different decision would have been come to—a decision that would not have been, so far as I am able to judge, in accordance with the opinions of a majority of the active members of the Society. *H. J. Elwes, Coleborne, Andoversford, R.S.O.*

—The Fellows are, I am sure, grateful to the Council for the opportunity afforded by the circulation of the draft copy of the proposed new bye-laws for a careful study of the various points raised before they are called upon to vote on Tuesday next. Our thanks are also due to you for again pointing out the dangers likely to arise if the clauses sanctioning voting by proxy are allowed a place in the bye-laws. It will be manifest to the most casual reader that the bye-laws have not been framed without an immense amount of care and conscientious work, a fact which I had an opportunity of seeing for myself when the draft was laid before the Council by the sub-committee entrusted with its preparation. It is to be hoped, therefore, that if a slightly different wording of any section or clause may appear desirable to some present, they will not forget that the question has doubtless been already most thoroughly discussed both by the sub-committee who drafted the bye-laws and by the Council as a whole when revising them with the assistance of the Society's legal advisers. While, therefore, we may expect that time will not be spent in discussing points which are after all of minor importance, it will be none the less necessary to carefully debate any bye-laws which, in the opinion of these present, seem to raise questions of serious moment. Such a point undoubtedly arises in those clauses which relate to voting by proxy; and as the general meeting of July 3 is called to pass the new bye-laws "with or without alteration or amendment" we may be sure the Council are ready to accept such alterations as may commend themselves to the majority of the Fellows present. We are not all old enough to remember the circumstances under which this question was, as we are told, fought out in 1874, when the Fellows decided they would no longer be fettered by the system of proxy voting, which may not unlikely have had something to do with the state into which the Society drifted. Certain it is that during later years, after proxy voting had been abolished, the Society rapidly recovered its position, and is now enjoying a measure of success many of us have not witnessed before. It may naturally be asked why then revert to a system of voting already discredited, and which certainly has not in any degree helped to bring about the present success—a success which reflects the greatest credit upon the members of Council, both past and present, and on our popular secretary and his assistants? The only reason which has been offered is that country Fellows at a distance from London, who subscribe to the Society, may wish to have a voice in the conduct of its affairs. Even if these members had expressed a very general desire for such a privilege, there might yet be grave reasons why it would not be for the good of the Society to grant it; but, so far as I am aware, the wish, if it exists at all, has not been publicly expressed, at least so far as we may judge by the pages of the horticultural press, which so generally voices the feelings of Fellows in all parts of the country. However this may be, important reasons undoubtedly exist why the Society should not revert to the old order of things in respect to proxy voting. The Members of Council, who have by their untiring efforts brought the Society to its present state of efficiency, cannot always continue in office:—many indeed who helped to bring about this satisfactory condition of affairs have already ceased to be members of the governing body—and changes occur from year to year. It is, of course, conceivable that in process of time a Council might be in office who desired some change inimical to the best interests

of the Society. As the proposed bye-laws stand, it would only be necessary for such a Council to decide that the matter was, in their opinion, of sufficient importance, and they could post to each Fellow a statement of their views, at the Society's expense, and a large majority of votes might be secured by proxy from those who had no personal knowledge of the matter under consideration, and who had no means of ascertaining what might be advanced with at least equal weight against the proposal. It must not be forgotten that where proxy voting does not exist, no vote can be taken until those voting have had an opportunity of hearing all that can be said on both sides—and surely in the interests of the Society this is of the utmost importance. But as the Council have intimated their readiness to accept alterations and amendments, we may conclude that proxy voting will not be pressed against the wish of the majority, if a majority are not in favour of the proposed change. We may also assume, I hope, that as the Council have submitted to all the Fellows a draft of the proposed bye-laws, they will be equally ready to take the Fellows into their confidence, and lay before them full details of any scheme they may themselves approve in connection with a New Chiswick, before calling the Fellows together to vote for or against the adoption of any such scheme as the best means of celebrating the Centenary of the Society. *A. W. Sutton, Reading.*

LILIES AND THEIR CHARACTERISTICS.—In my concluding article upon this interesting subject I have, quite unintentionally, done less than justice to the colour of *Lilium testaceum*, syn. *excelsum*, which is not white, a somewhat ordinary colour among Lilies, but of a beautiful buff hue. This Lily, which is of great decorative value, is generally supposed to be a garden hybrid, the result of a cross between *Lilium candidum* and *L. chalcedonicum*. *David R. Williamson.*

PAPAVER SOMNIFERUM.—Some forty years ago I found this growing sparingly on the cliffs between Folkestone and Dover, and quite recently I again found it in the same situation. It is thinly diffused over the cliffs, and was probably introduced by birds in the first instance, as there is no garden nearer than two or three miles. The sheets of *Echium vulgare*, in the same situation, are now gorgeous, one spike of flowers measured 2 feet in length, raised on a leafy stem of nearly the same height. The patches of Mallow, *Malva rotundifolia*, are also very beautiful, as also are the patches of *Lotus corniculatus*, and *Hippocrepis comosa*. In presence of such sheets of magnificent colour, ordinary bedding out seems puny indeed. *Rambler.*

ABNORMAL DEVELOPMENT IN ROSE.—A malformation which struck me as somewhat remarkable came under my observation recently in the shape of a Rose with no less than ten separate and distinct buds arising from its centre. Each bud was borne on a separate stalk, and was morphologically perfect and complete, consisting of calyx, corolla, stamens, and perianth-tube lined with ovaries in the usual way. The parent flower was minus the ovaries, the receptacle tube and gynoecium apparently having become elongated and differentiated to form an axis from which the others arose. *A. Spencer Watts.*

PHLOX LILACINA x. —I noticed recently that Mr. Wolley Dod refers to this as a plant of uncertain origin; there is no uncertainty about it. *P. lilacina* was raised from *P. stellaria* as the seed-parent, crossed with *P. canadensis*, from which the blue shade comes. These have been followed from the same parentage by *atro-lilacina*, *Bridesmaid*, *Even-tide*, *Little Dot*, *Seraph*, and others. *J. Smith, Newry.*

THE OVERTURNED GEAN-TREE AT BELVOIR CASTLE.—Referring to the illustration in last week's issue, p. 407, may I supplement your remarks by adding—much to my regret—that this fine natural feature no longer exists, the Oak-tree was deemed to be unsafe about a year since, and was taken down. The Gean was then supported in its position by the forester, who applied two strong wire cables; this only sufficed for a few months, the heavy gale and snowstorm in February last uprooted the Gean-tree. The photograph from which your illustration was prepared was kindly taken by Mr. Duncan Pearson, of The Chilwell Nurseries. *W. H. Divers.*

THE WEATHER IN ABERDEENSHIRE.—One of the most destructive thunderstorms experienced in Aberdeen for some years passed over that city on Saturday, 23rd inst. For a week the weather had been very changeable—drizzling rains and mists alternating with bright sunshine. The storms began on Saturday, when rain, almost tropical in its abundance, followed a fearful hailstorm. The fall of hail was so heavy that the aspect was most wintery. Fortunately, the storm did not last very long, still, serious damage was done to plants and crops, &c., in the garden. On Sunday morning—twenty-four hours after—heaps of hail showed the severity of the storm. *W. Kelly.*

—IN AYRSHIRE.—On Friday afternoon, 22nd inst., hail fell in great quantities at this place, doing a considerable amount of damage to tender plants, fruits, &c., in the gardens. Chrysanthemums, which were being arranged in their summer quarters, had their shoots and leaves almost entirely stripped from the stems, while the few leaves that are left look as if they had been cut with a pair of scissors. Leaves of Cabbages and Brussels Sprouts are completely riddled; Gooseberry and Currant bushes were stripped of their fruit and leaves, which are strewn beneath them. Apples and Pears, which had a promising appearance, are so severely hammered and cut, that I fear the crops will be almost ruined, both on wall-trained trees and on standards. Besides these, a host of other tender subjects, too numerous to mention, have suffered. Some idea of the severity of the storm may be gained from the fact that it only lasted twenty minutes, and in that time (the ground which was dust-dry before) was covered to a depth of 2½ inches with hailstones, which in sheltered places remained till 12 o'clock the following day. Fortunately, the hailstones were only of the size of extra-large Peas, or the damage would certainly have been more serious. Workmen who have lived on the estate for the last forty years do not remember such a large quantity of hail falling in so short a space of time, even in the middle of winter; and strange as it may seem, at two miles away, only a few drops of rain fell at the time. *D. Buchanan, Bargany Gardens, Ayrshire, N.B.*

—IN IRELAND.—The weather for the past fortnight has been very wet and cold. A continuance of rainy weather would prove disastrous to the Potato crops in low-lying districts, and Roses and other flowering plants have suffered. Strawberries are a very prolific crop, but the rain has hindered ripening. *A. O'Neill.*

FLOWERLESS STRAWBERRIES.—So many varieties of Strawberries are flowerless or "blind" in this district that I should be glad to hear if other readers of the *Gardeners' Chronicle* have observed it on other kinds of soils. As far as I can learn, it seems to be general; and in Bedfordshire I have seen examples in similar condition in both heavy and light soils. Several varieties that I have never known fail in this way before are very unsatisfactory this year. It has been attributed to the weather conditions prevailing at a critical time last season, and this probably is really the cause. August in particular was extremely dry, as we registered less than an inch of rain in that month. What was injurious to the Strawberries was evidently beneficial to fruit-trees as regards the production of flower-buds. *L. Castle, Ridgmont, Aspley Guise, Beds.*

GREEN PEAS.—When the first consignment of home-raised Green Peas are sold in shops at 4s. per bushel, it is evident that the grower's price is but a low one. The earliest pickings on any considerable scale seem to be of *Eclipse*, a blue round, very early and hardy, but fit only for field culture. The pods are small, and the shelled yield small also; but, such as it is, it is very good when well cooked. Such first pickings can hardly be sold at more than 3s. per bushel wholesale, and a well-filled bushel is assumed to contain 5 pecks. No doubt, *Chelsea Gem*, *William Hurst*, and other first early Marrows get a better price, but these are not grown in great bulk as *Eclipse* is. In gardens the old style of hard round whites and blues are seldom seen. We have now in gardens *Chelsea Gem*, *May Queen*, and many other first early Marrows of such excellence that only such good class Peas are cared for. These are followed by hosts of other first-class Peas, such as the market growers know little of. We may be able presently to get some Telephone, Telegraph, Veitch's Perfection, Yorkshire Hero, &c.; but they are not first-rate. *A. D.*

SOCIETIES.

ROYAL HORTICULTURAL AT RICHMOND.

JUNE 27, 28.—From Westminster to Richmond was not a great journey for the Royal Horticultural Society to make, but it is the only visit that has been arranged for the present year, and if the distance was but small, the conditions at the two places have no resemblance. None of us who frequent the Drill Hall were the less happy for being upon the green-ward of the Old Deer Park at Richmond, or for finding there a magnificent new marquee of 210 ft. by 50 ft. in which were staged the exhibits shown under the auspices of the visiting Society. It allowed ample room for the exhibits, and what is almost of equal importance, there was sufficient also for visitors to the show to move about and inspect them, without suffering the inconveniences that follow the treading upon one another's heels. The visit to Richmond, in short, was enjoyed immensely by the members of the various committees, and we have to record the event as a successful one. Nothing could excel the heartiness of the reception extended by the Richmond Society, a heartiness that found eloquent expression in a speech by Mr. Skewes-Cox, M.P., chairman of the Richmond Committee, at the luncheon, of which a brief account is given below.

Of the show itself it may be said, that although the Richmond Society attracted a remarkable number of exhibitors, the special display of the Royal Horticultural Society was very satisfactory, notwithstanding that this meeting is an extra one sandwiched between two ordinary fortnightly meetings at the Drill Hall. The tent above described was nearly, but not quite, filled; and some of the exhibitors, attracted by the claims (or horrors) of both societies, made exhibits under the auspices of both.

The FLORAL COMMITTEE recommended the Award of a First-class Certificate to *Nymphaea gigantea*, from L. DE ROTHSCHILD, Esq.; and Awards of Merit to *Delphinium* Sir George Newnes, from Messrs. KELWAY; *Iris Monneri* from Messrs. BARR & SONS; and *Ocrotus Venus*, from Messrs. ROBT. GREEN, Ltd.

The ORCHID COMMITTEE had no groups to judge, but awarded First-class Certificates to *Odontoglossum crispum* Duchess of Connaught, and *Cattleya Mendeli albena*, Princess of Wales, and an Award of Merit to *O. c. Empress of India*, all of which were shown by amateurs, as described below.

The FRUIT and VEGETABLE COMMITTEE made no award to novelties, but awarded a Gold Medal for a magnificent exhibit of vegetables from Lord ALDENHAM (gr., Mr. E. Beckett); and a Silver Knightian Medal for a grand exhibit of growing Tomatoes from Messrs. SUTTON & SONS, Reading.

Floral Committee.

Present: W. Marshall, Esq. (Chairman); and Messrs. Geo. Paul, Jas. Hudson, H. J. Cutbush, W. Bain, C. Bick, W. Howe, C. E. Shea, E. H. Jenkins, H. Selfe Leonard, T. W. Sanders, R. Dean, H. B. May, J. D. Pawle, J. Jennings, G. T. Miles, C. E. Pearson, J. H. Pitt, C. Jeffries, J. Fraser, W. J. James, C. J. Salter, J. F. McLeod, C. T. Drury, and C. R. Fielder.

Mr. H. J. JONES, Ryecroft Nursery, Hither Green, Lewisham, staged an exhibit of cut flowers, the feature of which consisted in a fine lot of Sweet Peas in bunches. Mr. JONES also showed a few excellent varieties of tuberous-rooted Begonias.

Messrs. G. JACKMAN & SON, Woking Nurseries, Surrey, showed a group of cut flowers of herbaceous perennial plants and Roses. There were sprays of *Adenophora Potanini*, a new species, growing about 4 feet high; flowers campanulate, very like a Campanula; colour lilac-mauve, with very long white pistil; leaves about 1 inch long, almost oval, deeply notched. Also *Aquilegia Skinneri*, red and yellow; *A. truncata*, smaller, but brighter; *Gentiana septemfida* (plants in a pan); *Iris* in variety, *Lilium davuricum*, Iceland Poppies, including an orange-coloured variety that has reproduced itself from seed for three years past; *Clematis coccinea* hybrids and varieties; *Pinks*, *Border Carnations*, *Paeonies*, &c. Also about 100 blooms of *Roses* in choice varieties, of which we noticed the following to be particularly bright:—*Camille Bernardin*, *Mdlle. Marie Verdier*; Mrs. W. J. Grant, *Jennie Dickson*, *Marie Baumann*, &c. (Silver Flora Medal).

Messrs. J. PEAR & SON, Roupell Park Nurseries, West Norwood, staged a group of *Gloxinias*, well-flowered plants, of attractive varieties, the prettiest of which was a large-flowered variety with white throat and pink margin to the limb. Some of the spotted forms, too, were of much merit; also self-coloured varieties, including a bright crimson, and others scarlet with white edge, &c. (Silver-gilt Banksian Medal).

Messrs. PHILLIPS & TAYLOR, Bracknell, Berks, showed a group of *Carnations* in pots, inclusive of *Souvenir de la Malmaison*, and a few border varieties. Of *Malmaison* type there were some of the newer varieties, such as *Lord Welby*, *Florizel*, *Mrs. Trelawney*, &c. The plants were young and the flowers good.

Messrs. J. PEAR had also a group of *Carnations* in pots, in which were represented a number of varieties of *Malmaison* type and border varieties. The old Blush *Malmaison* was

well shown by a number of plants, and The Churchwarden, Lady Grimston, Trumpeter, scarlet; *Princess of Wales*, &c. Of border varieties, *R. H. Measures*, scarlet, was very showy, its calyx burst a little, but in the garden it is quite hardy and creates a fine effect. *Germania*, J. W. Christmas, pink, and other *Carnations* were shown. Messrs. PEAR had yet another exhibit in a grand group of *Caladiums*, showing a number of choice varieties almost as finely as this firm's groups at the Temple Show.

Messrs. J. CARTER & CO., High Holborn, London, made a large exhibit of their *Gloxinias*, and double-flowered *Petunias*, &c. The *Gloxinias* were in capital condition, very well flowered, of bright colours, and in great variety. The *Petunias* ranged from pure white, to very deep purple, and included purple varieties edged with white (*Silver Flora Medal*).

Messrs. KELWAY & SON, Langport Nurseries, Somerset, made an immense exhibit of *Paeonies*, *Delphiniums*, *Gaillardias*, and other herbaceous perennial flowers. Among the latter were *scabrosa lutes*, a lovely pale yellow flower, *Morina longifolia*, *Allium azureum*; *Pentstemon Cobaea*, very large flowers of lilac-mauve tint; *Dianthus atro-coccineus*, crimson, and others; *Kniphofia caulescens*, *Eryngium amethystinum*, and *E. alpinum*; *Gillenia trifoliata*, *Campanula persicifolia alba grandiflora*, &c. Some of the *Gaillardias* were named varieties of which General Symons, richly coloured; *Sir Vindex*, pure gold coloured except disc; *Somerset Yellow*, *Vesuvius*, and *Lorenz*, were the best. The last-named variety is scarlet coloured, with yellow margin. A good number of herbaceous *Paeonies* were shown, and blooms of varieties of *Hippeastrums*. The *Delphiniums* offered such variety, all of them good ones, that we need not particularise any of the varieties. One of them is described under Awards (*Silver Floral Medal*).

Seedling *Codiums* were shown by ROBERT GREEN, LTD., 28 & 29, Crawford Street, London, W., two of which had narrow leaves, yellow and green, of which *Venus* was given an Award of Merit. The variety *Mercury* had shorter leaves than *Venus*, and was of a stiffer habit. *Adonis* had leaves an inch or more wide, twisted, and of high and various colours.

Messrs. BARR & SONS, King Street, Covent Garden, London, had a group of hardy cut flowers, including a fine lot of choice species. *Paeonies* *Mme. Montat* and *Leone de Mel* were very pretty; also *Brodiaea Bridgesii*, *Saxifraga linguata superba*, *Heuchera Zabeliana*, rose-coloured; *Tropaeolum Leichlini*, &c.; *Iris* in considerable variety, very showy varieties of *Potentillas* and *Gaillardias*; *Heuchera angulinea*, &c. Of plants there were several pretty species of hardy flowers, and an *Astilbe*, named *Silver Sheaf*, with tinted flowers, a cross between *A. astilboides* and *A. Thunbergii* (*Silver Banksian Medal*).

Mr. C. TURNER, Royal Nurseries, Slough, showed a fine lot of blooms of a new crimson Damask Rose, its single crimson flowers being very showy.

Messrs. PAUL & SON, Cheshunt, showed a new Tea Rose, *The Queen of Sweden* and Norway, a pretty salmon-pink tinted flower.

A magnificent group of miscellaneous plants was shown by J. P. MORGAN, Esq., Dover House, Roehampton (gr., Mr. J. F. McLeod). It was arranged with great taste, and was composed of splendidly cultivated plants, including a grand lot of *Souvenir de la Malmaison Carnations*, *Lilium longiflorum* *Harriall*, *Codiums*, *Caladiums*, *Acalypha hispida*, excellent heads of *Saxifraga pyramidalis*, *Hydrangea paniculata grandiflora*, *Saxifraga coccinea*, and remarkably well-bloomed plants of *Olerodendron fallax* (*Silver-gilt Flora Medal*).

Bougainvillea *Maud Chettleburgh* was shown by Col. ROUS, Worstead House, Norfolk (gr., Mr. W. Chettleburgh). It is described as a seedling, and has magnificently-coloured bracts (Award of Merit, R.H.S.).

One of the most attractive exhibits at the show was a display of *Water Lilies* from the Gunnersbury House Gardens of LEOPOLD DE ROTHSCHILD, Esq. (gr., Mr. J. Hudson). They were in tubs of water, placed closely together at one end of the tent, amid cut grasses and Rushes, and they had much the appearance of being in a pond, as the outlines of the tubs were hidden. The outer margins of the group were screened with *Eurya latifolia*. At the back of the exhibit the blue-flowered *Nymphaea stellata*, flowering strongly, had a beautiful effect; and in front of this were most of M. Miriac's lovely varieties of so many shades of colour. A *Silver-gilt Banksian Medal* was awarded, and was richly deserved.

Mr. J. RUSSELL, Richmond, showed a group of *Ivies*, *Eucynus*, *Eurya latifolia*, *Acers*. The Golden *Ivies* and other decorative plants were in capital condition (*Silver Banksian Medal*).

Messrs. HILL & SON, Lower Edmonton, who frequently exhibit groups of Ferns at the Drill Hall meetings, had a most extensive collection on this occasion, occupying a space of nearly 400 square feet, and gained a Gold Medal, an award which has very rarely been given for an exhibit of similar nature. Our space will not permit us to name a tithe of the species shown. Large specimens of *Davallia Mooreana*, *D. epiphylla*, and other species were prominent, as were several good plants of *Platyserium*, *Adiantum*, *Asplenium*, &c.; altogether a most representative collection.

Messrs. J. VEITCH & SON, Royal Exotic Nursery, Chelsea, exhibited very large plants of *Kalanchoe flammea*, and blooms of greenhouse *Rhododendrons* made a similar exhibit to one staged at the Drill Hall a week previously. Then followed a fine group of cut flowers of English and Spanish *Iris*es, *Paeonies*, and other hardy flowers; also an extensive group of *Roses* in pots; dwarf, and abundantly flowered, and representative of a large number of varieties. The variety *Electra*, a good pillar-Rose, described in our last issue, was very effective in this bright group (*Gold Medal*).

From the ROYAL GARDENS, Kew, were shown several very interesting things. *Hidalgos* (*Chilodais*) *Wercklei*, a greenhouse trailing plant, with single scarlet Dahlia-like flowers, 2½ inches across, with seven slightly recurving petals, and a bundle of prominent stamens, about ¼ of an inch long; *Roupellia grata* (*Bot. Mag.*, 4460) (*Apocynaceae*), a vigorous-growing trailing or pillar-plant, requiring stove temperature, has fleshy-pink fragrant flowers—it is known by the natives of Sierra Leone as the Cream Fruit, and is a rather shy climber. A bloom was also shown of *Cereus fu'gidus*, a scanty species, with pallid orange-coloured flowers, shaded with a vinous tint. Also young cones of *Araucaria Bidwilli*.

Messrs. W. CUTBUSH & SON, Highgate Nurseries, London, were awarded a Silver-gilt Flora Medal for a group of miscellaneous species of flowering plants, interspersed with others. *Souvenir de la Malmaison Carnations* in considerable variety were represented by capital plants. *Hydrangea paniculata grandiflora*, *Erica Bothwelliana*, *Kalosanthes*, *Othello Oranges*, &c., were noticed.

Messrs. CUTBUSH & SON also exhibited a large group of clipped trees, similar to that described in our report of the Temple Show. This group was placed upon the grass outside the tent.

Messrs. JAS. VEITCH & SONS showed, out-of-doors, a group of *Ivies* in pots trained as screens, about 3 feet or more high, and 2 feet across. These screens were represented in many varieties of *Ivies*, and was an exhibit not frequently seen at shows.

Gloxinias from Messrs. SUTTON & SONS, Reading, were admirable. The plants shown were not only illustrations of good cultivation, but were of most praiseworthy strain. The well known white variety *Her Majesty* was represented, as were also *Reading Scarlet*, *Duke of York*, scarlet and white, with spotted base; *Scarlet Queen*, *Duchess of York*, purple and white; and a number of curiously spotted varieties that are quite new. *Empress* has small spotting of violet and white; *Violet Queen* is also spotted, but the violet spots are larger, a very distinct variety; another was scarlet with white margins, and the margins spotted with white.

Mr. W. HAYWARD, Fife Road, Kingston, showed a number of floral designs.

Awards.

Codium Venus.—A narrow-leaved variety, twisted and pendent, variegated with gold colour. A pretty and effective plant for the decoration of a table in dining or sitting-room. From ROBT. GREEN, LTD. (Award of Merit).

Delphinium Sir Geo. Newnes.—A large, bright purple variety, with white centre. From Messrs. KELWAY & SONS (Award of Merit).

Iris Monneri.—A tall-growing, robust species, with bright, clear yellow flowers. Standards and falls veined slightly with green. From Messrs. BARR & SONS (Award of Merit).

Nymphaea gigantea.—An Australian species, with pale purplish-blue flowers 6 inches across, many petals, and a great quantity of showy yellow stamens. Leaves smooth, deep green, peltate. Figured in *Bot. Mag.*, t. 4047. From L. DE ROTHSCHILD, Esq. (Award of Merit).

Orchid Committee.

Present: Harry J. Veitch, Esq., in the Chair; and Messrs. Jas. O'Brien (Hon. Sec.), De B. Crawshaw, T. W. Bond, H. J. Chapman, A. Hislop, H. T. Pitt, H. Little, W. H. White, W. H. Young, H. A. Tracy, E. Hill, and W. Cobb.

Only four plants were entered to go before the Orchid Committee of the Royal Horticultural Society, though in Sir FREDERICK WIGAN's group there were many which would have been acceptable. All the four staged were very fine, and especially the two blotched *Odontoglossums* sent by Mrs. BRIGGS-BURY, Bank House, Accrington.

Awards.

Odontoglossum crispum "*Duchess of Connaught*," from Mrs. BRIGGS-BURY, Bank House, Accrington. A charming variety in every respect, and quite a novelty. The sepals and petals were heavily coloured with purple at the backs, the colour showing through the front. All the segments were wavy and slightly incurved, the French-white sepals and petals bearing many showily displayed chestnut-brown blotches, those on the fringed petals being the smaller. Lip large, fringed, and bearing one large blotch in front of the yellow crest, and many smaller spots near the margin (First-class Certificate).

Cattleya Mendeli albena "*Princess of Wales*," from Mr. H. A. TRACY, Amyand Park Road, Twickenham. A very fine flower of perfect shape, and of a clear white, with an almost imperceptible pearly-blush over the inner parts of the segments. Disc of the lip yellow, with a few reddish lines at the base (First-class Certificate).

Odontoglossum crispum "*Empress of India*," from Mrs. BRIGGS-BURY. A noble flower of the *O. c. apiculatum* class. Large and flatly displayed, white tinged with purple, and having clusters of red-brown blotches. Petals and lip serrate. A very showy flower (Award of Merit).

Fruit Committee.

Present: H. Balderson, Esq. (Chairman); and Messrs. Geo. Woodward, J. Willard, John Bashan, Jas. Smith, W. Wilks, S. Mortimer, Alex. Dean, Geo. Wythes, H. Ealing, A. F. Barron, H. Somers-Rivers, W. Poupert, W. Pops, Geo. Kelf, M. Gleeson, W. Iggullen, Jos. Cheal, Jas. H. Veitch, and William Crump.

Messrs. SUTTON & SONS, Reading, showed a large number of growing plants of Tomatoes, all of them bearing a large quantity of fruits. Most of the varieties have been exhibited on former

occasions, and are well known. They included Winter Beauty, Peerless, Best of All, Dwarf Gem, a yellow fruited variety, shown with three stems to a plant, about 2 feet high, heavily cropped; Maincrop, Al, Princess of Wales, Eclipse, Cluster Dessert, &c. Also yellow-fruited varieties, Sunbeam and Golden Nugget, and three of distinct character, and known as Pomegranate, Peachblow, and Tender-and-True. The Climbing French Bean Excelsior, was also shown (Silver Knightian Medal).

Lord ALDENHAM, Aldenham House, Elstree, Herts (gr., Mr. E. Beckett), made a grand exhibit of vegetables in season, and gained an award of a Gold Medal. The varieties shown were most exhaustive, and all of them showed the very highest cultural skill, just as the exhibit was a perfect representation of vegetables now in season, and in condition for the table.

A good Cucumber, named Ideal (Award of Merit, R.H.S., May, 1900), was also shown by Mr. E. BECKETT.

Mr. W. POURPART, Twickenham, exhibited a few choice vegetables, including Nonsuch Turnips, Early London Cauliflowers, French Horn Carrots, Globe Artichokes, &c.

An extensive collection of Melons, numbering about forty-five fruits, and including British Queen, Countess, Hero of Lockinge, and other choice varieties, was shown by Lord GERRARD, Eastwell Park, Kent (gr., Mr. Fyfe). A Silver Banksian Medal was awarded.

THE LUNCHEON.

The Committees of the Royal Horticultural Society met the Committee, judges, and friends of the Richmond Society at luncheon at 1.20 p.m. The Chair was taken by Mr. Skewes Cox, M.P. for Richmond, and Chairman of the Richmond Committee, supported on the right by the Mayor of Richmond, and on the left by Sir Trevor Lawrence, Bart., Sir W. T. Threlton Dyer, &c. After the toast of "The Queen," Sir T. Lawrence gave "The Richmond Horticultural Society, the Royal Horticultural Society, and the Secretaries of both Societies," and said how pleased the Royal Horticultural Society was to visit Richmond. Sir Trevor also complimented the local Society upon the magnificence and representativeness of their show. If he offered any criticism of the exhibition whatever, he would remark that the exhibits were arranged rather more closely together than was desirable. In replying to this toast, Mr. Skewes Cox (Chairman) made a very appropriate speech, in which he cordially welcomed the Royal Horticultural Society to Richmond. The Rev. W. Wilks, M.A., and Mr. C. R. King, the latter Hon. Sec. of the Richmond Society, also responded.

In proposing "the Judges of both Societies," Sir William Dyer took occasion to say that regarding Sir Trevor Lawrence's criticisms of their show, he had noticed the evils of overcrowding very much more acutely at the Royal Horticultural Society's Show in the Temple Gardens. Perhaps after all the Royal Horticultural Society would have to come to Richmond and become absorbed by Richmond. Mr. Owen Thomas, and Mr. Geo. Wythes responded. "The Chairman" was proposed by Mr. A. Chancellor, J.P., the donor of the Challenge Cup offered in the classes for Roses.

RICHMOND HORTICULTURAL.

JUNE 27, 28.—The twenty-sixth annual show of the Richmond Horticultural Society was held in the Old Deer Park as usual on the above dates. Thus, as the energetic hon. sec., Mr. C. R. King, observed at the luncheon, the society commenced its second quarter of a century in temporary association with the Royal Horticultural Society. The Richmond Society always secures a good exhibition, not so much the result of offering large or valuable prizes, as of the exceptional influence the committee has in the horticultural world, and of the popularity of Richmond town itself, as a London suburb. The society's list of President, Vice-Presidents, and Patrons, is more than remarkable, and upon the working committee, in addition to many influential gentlemen, the society has the advantage of many of the staff at Kew, including the Director. The chairman of the committee is Mr. Skewes-Cox, M.P. for the borough, and a constant worker for the society's interest. In connection with the visit of the Royal Horticultural Society and its President to Richmond, it is interesting to remember that Sir T. Lawrence for many years represented the district in Parliament.

The show which is being held as we go to press, is one of exceeding variety, and although the Royal Horticultural Society's auspices covered a number of exhibits from the trade, the Richmond Society's show consisted to a large extent of non-competitive groups from professional and amateur cultivators. If the Richmond show is to become a competitive exhibition of the first class, the value of the prizes offered in the specimen plant, and group classes, as well as others, must be increased.

The local committee arranged for a Royal Gardeners' Orphan Fund tent, where there were sales of horticultural produce in aid of this fund, and we shall be pleased to hear that this will materially help that fund.

The show was formally opened by Lady Lawrence, and in the afternoon the visiting committees of the Royal Horticultural Society and the local committee were photographed in the grounds.

ROSES, &c.

The Roses generally were of good quality, and if there be genial weather, there will doubtless be a glorious Rose season.

The "Chancellor" Challenge Cup, value £15, offered for the best collection of forty-eight trebles, was won on this occasion by Messrs. F. CANT & Co., Braiswick Nursery, Colchester, for the first time. The blooms were very fine, of good substance, and capital colour. There were Duke of York, Madame Montet, White Lady, Dr. Andry, Madame Jules Grolez, Comtesse de Ludre, Beattie Brown, General Jacqueminot, Captain Hayward, Madame Jules Finger, Mrs. Paul, Comte de Raimbault, Countess of Rosbery, Mrs. F. Cant, Marie Baumann, Souvenir de President Carnot, Gustave Pignoneau, Margaret Dickson, Crown Prince, Etienne Levat, Souvenir de Madame Eugene Verdier, Fisher Holmes, Antoine Revoire, Helen Keller, Victor Hugo, Lady Mary Fitzwilliam, Duke of Fife, Mrs. W. J. Grant, Charlotte Gillemot, Le Havre, Madame Cosin, A. K. Williams, Duke of Edinburgh, Maman Cochet, Prince Arthur, Mrs. R. G. Sharman Crawford, Madame Bouleat, Duke of Wellington, K. A. Victoria, Charles Lamb, Marchioness of Dufferin, Xavier Olibo, Rev. A. Cheales, Dupuy Jamin, Beauty of Waltham, Souvenir de S. A. Prince, Souvenir d'Elise, &c.

Mr. BENJAMIN R. CANT, Colchester, was little behind, and in an exhibit awarded 2nd prize, included a grand lot of blooms, including particularly good specimens of Madame Cosin, Mrs. Sharman Crawford, Muriel Grahame, and others. Mr. B. R. CANT has won this Cup on two previous occasions; Messrs. D. PRIOR & SON, also of Colchester, were 3rd.

The best exhibit of twenty-four trebles, distinct varieties, was from Messrs. D. PRIOR & SON, beating Mr. B. R. CANT, and Messrs. F. CANT & Co., who were 2nd and 3rd prize winners respectively.

In a class for twelve trebles Messrs. D. PRIOR & SON were again 1st; Mr. B. R. CANT 2nd; and Messrs. G. & W. H. BURCH, Peterborough, 3rd.

The best Hybrid Perpetual Rose shown in exhibits of twelve blooms was A. K. Williams from Messrs. F. CANT & Co., who had neat, capital coloured specimens; Mrs. Sharman Crawford from Messrs. G. & W. H. BURCH was 2nd; and General Jacqueminot from Mr. B. R. CANT, 3rd.

The best Tea Rose in a similar class was the lovely Mme. Cosin from Mr. B. R. CANT; 2nd, Marie Van Houtte, from Messrs. D. PRIOR & SON; and 3rd, the same variety from Messrs. F. CANT & Co.

In the class for twenty-four single blooms, distinct (amateurs), the best exhibit was one from Mrs. HAYWOOD, Woodhatch Lodge, Reigate (gr., Mr. C. J. Salter). The varieties were Gustave Pignoneau, Duke of Fife, Mrs. W. J. Grant, Crown Prince, Captain Hayward, Mrs. J. Laing, Horace Vernet, Marquise de Little, Duke of Wellington, Eugene Verdier, Tom Wood, Charles Lefebvre, Mrs. Sharman Crawford, Marie Baumann, General Jacqueminot, Madame Gabrielle Luitet, Dupuy Jamin, A. K. Williams, Margaret Dickson, Helen Keller, Earl of Dufferin, La France, Ulrich Brunner, and Duo de Montpensier; 2nd, B. E. WEST, Esq., Firch Dene, Reigate.

The class for twelve blooms, distinct, was also won by Mrs. HAYWOOD, followed by R. F. WEST, Esq. Duke of Fife, Gustave Pignoneau, and Marie Baumann were particularly good in the premier exhibit.

The best collection of twenty-four bunches of hardy flowers of herbaceous species was shown by Messrs. PAUL & SON, The Old Nurseries, Chessant, who had a very fine exhibit, in which the Peonies, Dictamnus, Agrostemma Walkeri, Centaureas, Eryngium alpinum, and Gillenia trifoliata were very attractive.

A 1st prize for hardy flowers in twelve bunches was won by A. W. YOUNG & Co., Stevenage Nurseries, Herts, and the next best in quality were from C. W. BAYNES, Esq., The Gardens, Ryedale, Weybridge.

Sweet Peas in bunches, for prizes offered by Messrs. A. W. YOUNG & Co. were best from Mrs. WROUCLIN, Coombe End, Kingston Hill (gr., Mr. Thos. Bolton).

GROUPS OF PLANTS.

The best miscellaneous group of plants arranged for effect (100 square feet), was shown by Mr. H. E. FORDHAM, The Nurseries, Twickenham, and was one of the brightest we have seen for some time. Lillium longiflorum Harrisii, L. speciosum (lanceifolium), Tuberose, Colons, Gloxinias, Petunias, Cattleyas, Odontoglossums, Cannas, Caladiums, Ferns, and Palms, were all used to very good effect; and the surface was relieved by Gypsophylla. There was a class also for a smaller group.

SPECIMEN PLANTS.

The best collection of six specimen Palms was shown by W. CUNARD, Esq., Orleans House, Twickenham (gr., Mr. H. Allsopp), who had specimens 10 or 12 feet high, that helped greatly to furnish the largest of the tents. The same exhibitor also gained a 1st prize for one specimen Palm.

Sir F. WIGAN, Bart., Clare Lawn, East Sheen (gr., Mr. C. Want), had 1st prize for the best group of six exotic Ferns, Davallia Mooreana, Asplenium Veleitzi, Adiantum decorum, &c. Sir F. WIGAN had also a 1st prize for a specimen plant of Cycas revoluta.

Caladiums were shown best by E. M. BARTLETT, Esq., The Uplands, East Sheen, who had six very large specimens in the same number of varieties, but in colour they were less bright than they might have been. 2nd, W. CUNARD, Esq.

Gloxinias were shown best by Mr. H. E. FORDHAM, The Nurseries, Twickenham, who had nine plants in 7-inch pots,

each plant splendidly flowered, and of choice strain. 2nd, E. M. BARTLETT, Esq., Uplands, East Sheen (gr., Mr. H. Hicks).

Another group of nine plants won a 1st prize for W. HARKER, Esq., The Elms, Ham Common, in a class limited to cultivators in the Society's district.

Orchids.—H. LITTLE, Esq., Baronshalt, Twickenham (gr., Mr. Howard), was 1st for six specimen Orchids, his collection embracing one of the most compact and finely-coloured specimens of Vanda tress we have seen, with about thirty spikes; Lælia tenebrosa, with twelve flowers; Cattleya Mendeli, with eighteen fine blooms; a good specimen of Thunia Marshallia and Vanda tricolor, with three spikes.

Sir F. WIGAN, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young), was second with Lælia tenebrosa with twenty-two flowers; Phalaenopsis grandiflora with two fine spikes; Cattleya Warscewiczii, six large flowers; Epidendrum prismatocarpum, E. vitellinum, and a large specimen Cypripedium Lawrenceanum.

The best six plants of Zonal Pelargoniums were from J. B. JOHNSTONE, Esq., Coombe Cottage, Kingston (gr., Mr. David Gibson). The group included three single and three double varieties, each plant a foot high and 8 feet or more across, and very well flowered. 2nd, A. LITTLE, Esq.

Fancy, decorative, and show Pelargoniums were shown by none save Mr. H. TURNER, Royal Nurseries, Slough, but the dozen plants from his well known nurseries were an exhibition in themselves, and were greatly admired, especially the varieties Delicatum, The Shah, Princess Teck, Ambassadors, Iona, Spotted Beauty, and Maggie.

Coleus were not very large, but well grown plants in the form of bushes were shown by E. M. BARTLETT, Esq., The Uplands, East Sheen (gr., Mr. H. Hicks).

FLORAL ARRANGEMENTS.

The Richmond Show included a considerable number of floral arrangements, most of which were displayed on a central stage in the Rose tent, and proved very attractive to the visitors. We can only mention a few of the principal of these.

The three best stands of flowers suitable for dinner-table ornamentation were shown by Miss N. H. COLE, The Vineyards, Feltham. The colours in this arrangement were red, white, and blue, Carnations and Cornflowers being largely used. The 2nd prize exhibit, from Miss C. B. COLE, was an arrangement of Sweet Peas.

A similar class for ladies only was won by Mrs. SUTTON, Sheerwater, Byfleet. The 4th prize in this class was a daring arrangement of Shirley Poppies, in suspended glasses from a central stand. The stand and wires were covered with pink ribbons, and the two stands were exhibited upon a mirror. This exhibit was the most popular with the ladies, probably because it possessed most novelty.

The best basket of cut flowers was one from Miss E. M. TENBUTT, Mogden House, Isleworth; and the best basket of Roses from Miss MINNIE CINTRA, Doughty House, Richmond Hill.

The best basket of flowers in a lady's class was from Miss C. B. COLE; and the 3rd prize in the same class was awarded to a basket of excellent Malmaison Carnation blooms, shown by Miss JULIA JOHNSTONE, Coombe Cottage, Kingston.

FRUIT AND VEGETABLES.

It is still rather too early for the exhibition of much fruit, but there was a satisfactory representation of those in season, and the quality of these exhibits, and especially of the vegetables, was first-rate, and the competition keen.

The best collection of fruit in six dishes (for the Society's prizes) was shown by C. SWINFEN-EADY, Esq., Ostlands Lodge, Weybridge. He had Dryden Nectarines, Rivers Early York Peaches, Governor Wood Cherries, Royal Sovereign Strawberries, and Black Hamburg and Foster's Seedling Grapes—a very nice collection indeed; 2nd, W. H. ELLIS, Esq., Clovelly, Hounslow (gr., Mr. H. Ford).

For prizes offered by W. Cunard, Esq., for a collection of fruit of six dishes (Pines excluded), the best exhibitor was C. SWINFEN-EADY, Esq., whose Dryden Nectarines, Sutton's Al Melons, and Black and White Grapes, were very good.

The best three bunches of Black Grapes were of the variety Black Hamburg, from Miss RIDGE, Highfield, Englefield Green (gr., Mr. G. Lane). These were excellent in size of berry, and colour, and finish. The same variety from Mrs. TULK, Cowley House, Chertsey (gr., A. Sadler), was 2nd. The best White Grapes were Foster's Seedling from Miss RIDGE.

The best Melon of three was Hero of Lockinge, from Sir F. WIGAN.

Of four dishes of Peaches staged, Hales Early, in moderate specimens from W. H. ELLIS, Esq., were awarded 1st prize, and the best Nectarines were Lord Napier from W. CUNARD, Esq. Strawberries in exhibits of two dishes, were best from Miss RIDGE, and the varieties were Royal Sovereign and James Veitch, the former being exceptionally large, but not of deep colour. The 2nd prize was awarded to W. CUNARD, Esq., who showed the same varieties as did Miss RIDGE.

Not only but Royal Sovereign Strawberries were staged in the single dish class, and the best were shown by W. H. ELLIS, Esq., Worton Hall, Isleworth. There were only two dishes of Cherries shown, the best being from Miss RIDGE.

Vegetables.—The open class for a collection of vegetables was won by J. B. JOHNSTONE, Esq., Coombe Cottage, Kingston (gr., Mr. David Gibson), whose produce was exemplary in every particular.

The prizes offered by Messrs. Sutton & Sons, and Messrs. J. Carter & Co., for collections of vegetables were in each case won by the same exhibitors. 1st in both classes, J. B. JOHNSTONE, Esq., Coombe Cottage, King-ton (gr. Mr. David Gibson); 2nd, C. E. STRACHAN, Esq., Gaddesden Place, Hemel Hempstead (gr. Mr. Folkes).

For special prizes offered by Col. Guyon, for a collection of vegetables, the 1st prize winner was Mr. A. FARMER, Railway Cottages, Gunnersbury.

The produce from allotment-holders and from cottagers was very satisfactory. The best collection of vegetables in this section came from Mr. R. KEENE, 81, Manor Grove, Richmond; and of salads from Mr. G. H. GILBERT, 16, Talbot Road, Twickenham.

Cucumbers were best from Mrs. COOPER CODES, Heddingham House, Twickenham (gr. Mr. J. Sallows).

NON-COMPETITIVE EXHIBITS.

Messrs. T. RIVERS & Son, Sawbridgeworth, made an exhibit of fruit-trees in pots, Peaches, Nectarines, Cherries, &c., all of them laden with heavy crops of large, well ripened fruits. There were Thomas Rivers, Grosse Mignonne Peaches; Victoria Pine-apple, and other Nectarines, and several varieties of Cherries (Silver-gilt Medal).

W. CUNARD, Esq., showed six dozen fruits of Lord Napier eighteen fruits of Early Rivers Nectarines, and dishes of James Veitch and Royal Sovereign Strawberries.

Mr. J. BRUCKHAM, nurseryman, Twickenham, had a large group of trees in tubs, suitable for use in decorations indoors or out-of-doors, including variegated Privets, Bays, Laurels, &c. (Silver Medal).

A plant of the Loquat, *Eriobotrya* (Photinia) japonica, 6 feet high, bearing a quantity of ripe fruits, was shown by Sir CHAS. RUGG PRICE, Bart., Spring Grove, Richmond (gr. Mr. E. Perry).

The various groups of Orchids in the large tent, contributed much to the general display and interest of the show, and the obscure light of the tent materially assisted in their appearing to advantage.

The three large groups staged, not for competition, were uniformly good; that set up by Mr. W. H. Young, gr. to Sir F. WIGAN, Clare Lawn, East Sheen, being equal to any group staged of late years. All the plants were finely grown and profusely flowered, and the group contained a large proportion of showy novelties. Of the best of these were *Laelio-Cattleya* × *Wiganie* (L.-C. × *Gottoliana* × *O. Mossie*), with fine showy flowers, the sepals and petals of which were of a charming tint of yellowish-rose; the lip, formed like that of *C. Mossie*, different shades of purple with narrow veining; L.-C. × *Wiganie aurea*, a much lighter form, with yellow sepals; L.-C. × *Canhamiana*, of white, a fine white-petalled form with seven flowers, was shown; L.-C. × *Hy. Greenwood superba*, L.-C. × *Aphrodite*, Clare Lawn variety, white, with crimson-purple lip. *Sobralia macrantha*, and *S. macrantha alba*, with four flowers; *S. xantholenca*, *Cattleya* × *Graye granulosa*, *Schofieldiana* × *velutina*, the rare *C. x Scederianae*, *C. Gaskelliana albescentis*, and a host of other handsome and rare varieties. Here and there in the group arched over the fine sprays of *Phalenopsis*, and at intervals the brilliant flowers of the showy *Madevallas* were arranged; while in groups were selections of the finest forms of the showy *Cattleyas*, *Laelias*, &c.; the botanical interest being represented by *Nanodes Medusa*, various *Epidendrum*s, *Cologynne asperata*, *Bulbophyllum Dearth*, *Cypripedium*s, &c. (Silver-gilt Medal).

HENRY LITTLE, Esq., Baronaholt, Twickenham (gr. Mr. Howard), staged a very effective group, at the back of which were some fine specimens of *Cymbidium Lowianum* interspersed with fine sprays of *Oncidium Marshallianum*, *O. cartum*, *O. varicosum*, and other elegant species. Also *Vanda teres*, and a white form of it, and other tall-growing species. The body of the group was made up of fine varieties of *Laelia tenebrosa*, one of the forms being the darkest we have seen; *Cattleya Mendeli*, *C. Warneri*, *C. Mossie*, some white *C. Warszewiczii*, the centre one having flowers 10 inches across, and very fine in colour; *Laelio-Cattleya* × *Lady Wigan*, a good lot of *Cypripedium*s, *Odontoglossums*, *Epidendrum itellinum*, *Odontoglossum citrosum*, &c. (Silver-gilt Medal).

Mr. H. A. TRACY, Twickenham, showed a very large and handsomely coloured *Cattleya Mendeli* "La Belle."

At the entrance of the tent Messrs. HUGH LOW & Co., Bush Hill Park, had a very effective group of showy things. At the back were *Vanda teres*, and *V. Hookeriana*, *Epidendrum prismatocarpum*, *Oncidium ampliatum*, and other tall growers, the front being chiefly composed of fine forms of *Cattleya Mossie*, the centre having a small collection of fine white forms, including *C. M. Wagneri*, *C. M. Duke of Teck*, like an improvement on *C. M. Reineckiana*; *C. M. Disciplina*, white, beautifully veined purple, and with a richly coloured lip; and another white form with pink tinge on the lip. Also in the group among other remarkable things were *Laelia Digbyana*, *Cypripedium* × *Vipani*, well-grown *Phalenopsis*, *Odontoglossums*, &c. (Silver-gilt Medal).

Mr. W. ICKTON, Granard Nurseries, Putney Pk. Lane, London, S.W., obtained a Silver-gilt Medal for a large group of decorative foliage plants, Palms, Acers, Euryas, and such like species.

Messrs. W. FROMOW & Sons, Chiswick, showed a large group of Japanese Acers and other plants (Silver-gilt Medal).

A group of Malmaison Carnations from Messrs. HUGH LOW & Co., Enfield, was awarded a Silver Medal; and there was another group of similar Carnations from Messrs. B. S. WILLIAMS & Son, Upper Holloway, London, N. (Bronze Medal).

Messrs. ROBT. GREEN, LTD., 28 and 29, Crawford Street, W., exhibited such a group of seedling and well known varieties of *Cooliams* as we have seldom seen. The plants were small, being about table size, but they were capitally coloured (Silver Medal).

Mr. H. J. JONES, Ryecroft Nurseries, Hither Green, Lewis. ham, showed a fine group of plants, including smaller groups of *Cannas*, tuberous-rooted *Begonias*, Sweet Peas in pots, *Verbena hybrida*, &c. (Silver-gilt Medal).

Groups of *Cacti* in pots, and of hardy flowers, were shown by Messrs. A. W. YOUNG & Co., Stevenage (Silver Medal).

Messrs. DOBBIE & Co., Rothessay and Orpington, made a characterist exhibit of Sweet Peas and *Violas* (Silver Medal).

Messrs. CARTER & Co., High Holborn, London, exhibited, among other things, a pretty representation of rockwork, suitably planted with alpine plants; also their "hanging Ferns" (*Davallias*), suspended over mirrors, representing water, &c. (Silver Medal).

Messrs. J. HILL & Sons, Lower Edmonton, exhibited a group of Ferns; and Mr. AMOS PERRY, Winchmore Hill, London, N., a capital group of hardy flowers (Silver Medal).

Tuberous *Begonias* were grandly shown by Messrs. T. S. WARE, LTD., Feltham, in a large group, worthy of all praise (Silver-gilt Medal). Messrs. T. S. WARE, LTD., Feltham, had also a rich bank of hardy flowers, both as plants in pots, and as cut flowers. In this group *Sempervivum montanum*, *Campanula Van Houttei*, *Galliarua*, *Lilium rubellum*, *Campanula persicifolia* Moerhousii (see fig. 135 on p. 414), *Lilium*, &c., were conspicuous.

Mr. J. RUSSELL, of the New Road Nurseries, Richmond made very extensive exhibits. One of these was a group of miscellaneous plants arranged for effect, a group of representative hardy flowers and other exhibits (Silver-gilt Medal).

Messrs. JNO. LAING & Sons, Forest Hill Nurseries, London, S.E., had an attractive group of tuberous *Begonias* in pots (Silver Gilt Medal).

Mr. W. THOMPSON, Sheen Nurseries, Richmond, won a Silver Gilt Medal for a group of plants of miscellaneous species; Messrs. PAUL & Son, Cheshunt, a Bronze Medal; and Messrs. W. CUTBUSH & Son, Highgate, a Silver Medal for similar exhibits.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

THURSDAY, JUNE 21.—Members of the Committee present at this meeting were Messrs. G. Shorland Ball (Chairman), J. Leemann (Vice-Chairman), W. Thompson, Dr. Hodgkinson, W. Stevens, R. Ashworth, J. Cypher, J. Robson, C. Parker, P. Weathers (Hon. Sec.). There was a very good display of plants, and several handsome groups.

W. THOMPSON, Esq., Walton Grange, Stone (gr. Mr. Stevens), staged a magnificent lot of *Odontoglossums*, of which plants the visitor never tires of those that come from this noted collection, and on this occasion they were especially fine. In all about twenty plants were shown, four of which were in 12-inch pots, and each carried about four fine flower-spikes. The best was *O. crispum* var. *Triangle*, which possessed about sixty flowers of good form, with a large brightly coloured blotch on each segment. The Committee awarded this variety a well deserved Cultural Certificate and an Award of Merit. In the same group, a marvellous plant of *O. x excellens*, bearing about seventy blooms, was noticed, not an especially good variety, but an instructive example of what a well-cared-for plant is capable of when well cultivated. *Odontoglossum* × *Wilckeanum* var. *grandis*, shown in capital form, was awarded a First-class Certificate. The gem of the group would probably be considered by most connoisseurs to have been *O. x Rolfeae* Walton Grange var. (fig. 136, p. 415, in present issue, Ed.), a fine hybrid between *O. Pescatorei* × *O. Harryanum*. This has been previously written of in these columns, but the variety under notice was an extra fine one, and the bright yellow blotch on the crest of the lip formed a striking contrast to the remainder of the flower, the colour of which was generally of a mauve or faint violet. The plant was awarded a First-class Certificate. A Silver-gilt Medal was given to the group.

G. SHORLAND BALL, Esq., Wilmslow (gr. Mr. Gibbons), exhibited that which appeared to be a very good form of *Stanhopea Bucephalus*, a remarkably large and handsome flower (First-class Certificate).

J. LEEMANN, Esq., Heaton Marney (gr. Mr. Edge), staged a fine group of miscellaneous Orchids, including fine varieties of *Cattleyas*, and many good hybrids; particularly noticeable in the group being several well grown and flowered *Brassavola* (*Laelia*) *Digbyana*. Awards of Merit were made to *Cattleya Mossie* var. *grandiflora*, *C. M. var. grandis*, and to *Cattleya x calumnata*, a species now but seldom observed. A plant of *Laelio-Cattleya* × *Martineti* (*O. Mossie* × *L. tenebrosa*), was not shown to good advantage, the flowers being unexpanded. A good form of *Odontoglossum Coradine* received an Award of Merit, and the award of a First-class Certificate previously made to *Cypripedium* × *Goweri* superbum was confirmed, the form shown by Mr. LEEMANN being the best yet seen at these meetings. For the group an award of a Silver-gilt Medal was made.

T. BAXTER, Esq., Morecambe (gr. Mr. Roberts), showed a small group of *Odontoglossums* (Vote of Thanks).

B. GRATRIX, Esq., Whalley Range (gr. Mr. McLeod), staged several good *Orchids*, inclusive of *Cattleya Mendeli* var. *Amelia*, a handsome variety, almost uniform in colour, a pale, almost white flower. There were four flowers on the spike. *Laelio-Cattleya* × *Lady Wigan* was shown from the same collection, in fair form. *Cypripedium* × *Gertrude* Hollington var. *magnificum* received an Award of Merit, and group a Vote of Thanks.

O. O. WRIGLEY, Esq., Bury, Lancs. (gr. Mr. Rogers), showed *Laelia majalis* (Award of Merit), and *Cattleya Mendeli*, "Wrigley's variety."

J. WILLIAMS, Esq., The Grange, Stretford, exhibited *Epidendrum* species (*paniculatum*), and *Cypripedium bellatulum*. E. H. SEDDON, Esq., Brooklands (gr. Mr. Milne), received an Award of Merit for a fine *Cattleya Mossie* var. *magnifica*.

A. J. LEES, Esq., Stretford, an amateur, scored a success with a beautiful pure white *Cattleya Mendeli*, called Mrs. A. J. Lees.

W. WATSON, Esq., Stretford, another amateur, staged a nice group of *Orchids*, for which he was awarded a Silver Medal.

J. VEITCH & Sons, Ltd., Chelsea, exhibited *Odontoglossum crispum* var. *Silver Queen*, a good variety.

Mr. JOHN ROBSON, Altrincham, exhibited *Laelia* × *Cattleya* × *Fire King*, but it was not so fine a form as that previously certificated by the Society.

JOHN COWAN & Co., Ltd., Gateacre, had a very charming set of *Odontoglossums*, the finest of which was *O. crispum* var. *Rosendale*, a fine flower heavily blotched with brick-red. This plant passed into Mr. R. Ashworth's collection after receiving a well deserved First-class Certificate.

Awards of Merit were voted to the same firm for *O. crispum*, The Bride (provisionally so named); for *Laelio-Cattleya* × *eximia* and *Scaphoglottis aureo-Viellardi*, the latter observed for the first time in Manchester. Mr. A. J. KEELING staged several nice plants, one of which, *Dendrobium* × *Venus* var. *amena*, was given an Award of Merit, and a Vote of Thanks was given for the group. Messrs. SANDER & Co., St. Albans, staged many good plants which did not come under the notice of the committee. P. W.

LAW NOTES.

CUT FLOWERS—DISPUTED LIABILITY.

IN the Westminster County Court, on Monday, 18th inst., his Honour, Judge Lumley Smith, Q.C., tried the case of Jones v. Riley, in which the plaintiff, a wholesale florist, carrying on business at Covent Garden, sued defendant, Mr. Hugh Riley, who is also a flower-dealer, carrying on business at Smithfield Market, Manchester, to recover payment of a balance of account in respect of cut flowers supplied to his order. The defence was that the goods in question were ordered by the defendant from his brother, John Riley, who carried on business in London, and had been duly paid; but it was denied that any transactions took place direct with the plaintiff.

Mr. Robert Parker Jones was called, and said he was a flower-dealer, carrying on business at Covent Garden Market, and had known defendant for the past ten years. The goods in question were ordered by John Riley, who was a brother of the defendant; but he (plaintiff) never gave credit to John, but always looked to Hugh for payment.

Mr. Hugh Riley (the defendant) was called, and said he had purchased cut flowers from his brother John, in London, for the past few years, and sent him considerable sums of money from time to time. With reference to the goods in question, he would swear that he never gave the plaintiff a single order. As a matter of fact, he did not know who supplied the goods, but he received them from his brother, and paid him for them.

His Honour said he had come to the conclusion that the defendant had employed his brother John to buy for him, and that the plaintiff was under the impression that he was giving credit to the defendant. Judgment therefore would be for the plaintiff for the amount claimed, with costs.

Obituary.

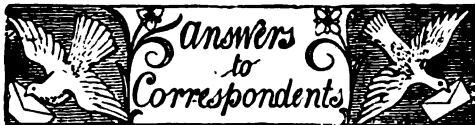
DANIEL DEWAR.—The death of Mr. Daniel Dewar, head forester on the Lovat estates for thirty-six years, which took place at Teanacuil, Beaulieu, N.B., on June 3, will be sincerely regretted by a wide circle of friends. Born in Crieff sixty-seven years ago, Dewar in early life emigrated to America, where he spent some time in the Botanical Gardens at Washington. He returned to fill an appointment on Lord Digby's estate in Ireland, but he soon found his way to Beaufort Castle, Inverness-shire, where the rest of his life was spent, he serving three chiefs of the clan Fraser. Mr. Dewar carried out an immense amount of tree planting on all the Lovat properties, and he will be remembered as the first forester in Scotland who adopted the German method of close canopy. The deceased left three sons, all of whom are filling responsible posts in various walks of life.

ENQUIRIES.

VARIEGATED SHOOT FROM STOCK BELOW GRAFT.—A correspondent is anxious to know where such an occurrence can be seen at the present time? It is not an uncommon occurrence in the variegated Maple (*A. Negundo* variegatum).

MRS. LAWRENCE, of Middleton Hall, Llanarthney, R.S.O., would be much obliged to any reader of the *Gardeners' Chronicle* for the address of a nurseryman or other person keeping the white variety of the large-flowered Periwinkle (*Vinca major* alba), mentioned in William Sutherland's *Hardy Herbaceous and Alpine Flowers*, published in 1871? It appears to be rare, and she cannot hear of it.

ANTS AND ROSES.—A correspondent writing from Malta, would be glad to know how he may protect his Roses from ants. Perhaps some of our readers will kindly supply the needed information.



* * The pressure on our space this week is so extreme that we are obliged to hold over numerous reports and other communications.

ASPARAGUS FASCIATED: *T. & Sons*. Extremely common. The Cucumber is of more interest, but the photograph does not show what you described.

BLUE HYDRANGEA HORTENSIA BLOOMS: *H. P., New Orleans*. Apply water in which alum is dissolved, at the rate of 1 ounce to the gallon of water. Once a fortnight is sufficiently often to do this. Iron-slings mixed with the soil in small quantity, and potting in peat naturally impregnated with iron, have a similar effect.

BOOKS: WORK ON CULTIVATING MARKET PLANTS: *T. B. M.* No such work exists; although there are numerous special manuals on fruit culture: Grapes, Pineapple, Strawberry, &c. Market gardening is simply good gardening with certain adaptations called for by special conditions.—*W. King, Warminster*. The books enquired about are published by John Murray, Albemarle Street, Piccadilly. We do not know the prices.—*A. Z.* We know of no fully-illustrated work on hardy herbaceous plants. The one that most nearly fulfils that definition is Mr. G. Nicholson's *Dictionary of Gardening*, published by Mr. Upcott Gill, 171, Strand, W.C. An illustrated manual, containing brief descriptive notes and methods of cultivation, is *Hardy Flowers*, by Mr. W. Robinson (Macmillan & Co., London).—*F. B.* Miss Pratt's *Flowering Plants of Great Britain* (F. Warne & Co.), can be had in parts. John's *Flowers of the Field* (Society for Promoting Christian Knowledge).—*Botany*. Your question is too vague, we do not know your requirements or your capabilities. Presuming that you are a beginner, we recommend to your notice Farmer's *Introduction to the Study of Plants* (Longmans). We do not know the cost, probably a few shillings.

CUCUMBER PLANTS DISEASED: *T. J. W.* Materials insufficient, please send better. Meanwhile we would advise you to syringe the plants thoroughly once in ten days with the following: half-ounce of sulphide of potassium, dissolved in one gallon of gallon.

GRAPE SPOT: *H.* Caused by a fungus; you can do nothing this year but burn the affected berries. Next season spray early with weak Bordeaux Mixture.

IVY-LEAVED PELARGONIUMS MARKED WITH BROWN SPOTS: *J. Madden*. The injuries result from the perforations of mites or red-spider.

MANURES FOR BRASSICAS: *Cambridge*. Generally speaking, those that cause rapid growth, viz., well-decayed (not rain-washed) farmyard-dung, liquid-manure from the farmyard, nitrate of soda, commercial fish-manure, pigeons' and fowls' dung after fermentation, and when decay has set in; night-soil, &c. If you value pleasant flavour in the vegetables, old hotbed-dung, much-decayed stable-dung, and diluted farmyard manure-water, are among the best to use. On the heavy land

of which you speak, deep cultivation, trenching three spits, but leaving the bottom spit *in situ*, and placing considerable quantities of half-decayed manure at the bottom of the trenches, and decayed manure below the top spit, would do a lot of good; but it would be necessary to allow the land to remain uncropped for several months afterwards. Fish-manure, fowls', pigeons'-dung, and nitrate of soda, are best given as surface-dressing.

MILDEW ON GRAPES: *A. C.* Mix $\frac{1}{2}$ oz. sulphide of potassium in 1 gallon of water, and syringe the Vines at intervals of ten days. After the destruction of the mildew, let the bunches be washed with clear rain-water. Berries on which the mildew has rested will not swell, and must be cut out of the bunches. Water at a temperature of 145° will also destroy mildew, and not injure the Vines or fruit.

MOULD ON JAM: *H. D. W.* The mould on jams, &c., is the ordinary *Penicillium crustaceum*. *M. C. C.*

NAMES OF FRUITS: *E. S.* Your Peaches were damaged before they reached us. All soft fruits, and especially Peaches, that are sent us for naming should be packed with the greatest care, in a stout box of sufficient size to contain a fair amount of packing material. Shoots with foliage are also necessary to determine some Peaches, and are helpful in the determination of all fruits.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—*B. M. S.* 1, *Dendrobium transparens*; 2, *Dendrobium Parishii*; 3, *Thunia Bensonii*.—*A. B.* The Iris cannot be named from flower sent; 2, *Doronicum Pardalianches*; 3, *Heuchera pubescens*; 4, *Lychnia Flos-jovis*; 5, *Erigeron philadelphicus*; 6, *Collinsia bicolor*.—*B. H.* 1, *Cotoneaster microphylla*; 2, *Cerastium tomentosum*; 3, *Veronica Teucrium* var. *dubia*; 4, *Polygonum affine*; 5, *Sedum reflexum*; 6, *Eriophyllum caespitosum*.—*G. W.* 1, *Allium Moly*; 2, *Veronica Teucrium* var. *dubia*; 3, *Dictamnus albus* var. *purpureus*; 4, *Phlox ovata*.—*Salvia*. *Salvia involucrata*, *Iris sibirica*.—*G. Abbey, Jun.* *Saxifraga trifurcata* var. *ceratophylla*.—*E. F. F.* *Crataegus punctatus*.—*F. B.* 1, *Equisetum arvense*; 2, *Galium aparine*; 3, shrivelled beyond recognition; 4, *Silene*, we do not recognise, send better specimens, and try to imagine the condition in which specimens packed in your fashion are when they reach us, perhaps after a delay of some days.—*J. T. L.* 1, *Pavia rubra* (tree); 2, *Bignonia purpurea*.—*J. C.* *Betula alba* var. *verrucosa*.—*C. J. P.* 1, 2, 3, 4, appear to be all seedling *Rhododendrons*, which we cannot name; 5, *Myrica Gale*.—*R. L. Walton*. 1, *Anthericum Liliago*; 2, *Asphodelus luteus*; 3, *Hordeum jubatum* (Squirrel-tail Grass); 4, *Pteris longifolia*; 5, *Pteris tremula*; 6, *Davallia Tyermanii*; 7, *Campanula persicifolia* alba. The *Adiantum* may be a seedling, as you say, but it is *Adiantum excisum multifidum*, nevertheless.—*S. P.* 1, *Lathraea squamaria*, a parasite on roots of Hazel, &c.; 2, *Polygonum*, we do not know the species; 3, *Rhodotypos kerrioides* (Rosaceae); 4, *Heuchera sanguinea*.—*J. S.* *Crataegus crus galli*.

PEONY-BUDS NOT EXPANDING: *Peonia*. The result doubtless of weakness, brought about by long-continued lack of moisture in the soil at a depth from the surface where the roots mostly are found. This prevents the absorption of plant-food, even if it be present in the soil. Peonies are great consumers of nutriment, and when grown in borders of mixed plants and shrubs, they are seldom afforded enough manure for their sustenance. Hence loss of buds, small flowers and foliage, and short duration of the period of flowering. Land for Peonies should be trenched 3 spits deep, and heavily manured at the start, as well as annually.

PEACH: *S. F. & Co.* The fruit was much injured in the post. From the remains we should suppose it to be *Grosse Mignonne*. Not Condor, certainly.

PEACH, APPLE, AND PEAR: *Enquirer*. The Peach has suffered from mildew. Remove every affected fruit, and burn it, and apply flowers-of-sulphur occasionally on the foliage whilst it is moist from syringing; or employ sulphide of potassium at the rate of half-an-ounce to 1 gallon of water, using a spraying-syringe, or a common

one furnished with a fine spreading rose. The foliage of the Pear and Apple seem to have been injured by frost, the low-lying damp site of the garden assisting in producing the injury.

PEARS BLACK AND DROPPING OFF THE TREES: *S. & Sons, Malton*. The effects doubtless of sharp frost, rotting of the fruit following.

RETINOSPORAS: *Munster*. None of those mentioned in your note grows taller than 15 feet. *Cryptomeria elegans* seldom reaches a greater height, nor do the under mentioned species and varieties of Conifers:—*Biota orientalis aurea*, *B. o. elegantissima*, *B. o. aureo-variegata*, *B. o. meldonensis*, *Thuja plicata dumosa*, *Thujopsis dolabrata*, *T. d. variegata*, *Juniperus suecica*, *J. hibernica*, *J. neoborensis*, *J. canadensis*, *Taxus canadensis*.

RUST ON CHRYSANTHEMUMS: *A. Z.* No certain cure. Better gather every diseased leaf, and burn it forthwith. The disease begins in the tissues of the plant, and the "rust" is merely the summer fruit; consequently the fungus in its earliest stage cannot be killed by any substance that does not injure the plants. As a preventative, you may use petroleum at the rate of one table-spoonful in two gallons of soapy-water. Mr. G. Maasee in his descriptive note in reference to this "rust" of *Chrysanthemum* in *Gardeners' Chronicle*, October 8, 1898 (which see), recommends for this purpose $\frac{1}{2}$ -ounce of sulphide of potassium (liver of sulphur) in 1 gallon of water, to be frequently used in the early part of the season.

TOMATO-PLANTS DROOPING AND OF A BLUISH-GREEN COLOUR: *A. B., St. Peter's*. Your plants have probably become affected by the "sleepy" disease, a minute fungus, *Fusarium Lycopersici*, which presents three different stages of development in the plant. Remove the affected plants and burn them, and dress the soil heavily with quick-lime, mixing it with the soil so as to destroy the resting spores of the fungus. Lime-wash the walls, and if many of the plants are attacked, remove the soil and char it.

TOMATOS: *J. T. U. and W. M.*, and many others are referred to a paragraph on p. 419.

TOMATOS FOR AUTUMN FRUITING: *A. B., St. Peter's*. Frogmore selected, Ham Green Favourite, and Ladybird.

VINE LEAVES DISFIGURED: *Black Hamburg*. There is nothing much the matter with the Vines. At some early part of the season there was too much humidity in the air of the vinery, owing probably to lack of ventilation, and much damping down being performed, and watery excrescences formed on the lower surface of the leaves. These abnormal out-growths have now dried up, hence the minute spotting noticed. Give more air, even if by so doing fireheat has sometimes to be used, and damp down less.

VINES: *L. S. R. and J. P. W.* Spot caused by a fungus (*Glaeosporium*), often figured and described in the *Gardeners' Chronicle*. You can do nothing this year but burn the affected berries. Next year spray early with Bordeaux Mixture.

COMMUNICATIONS RECEIVED.—Mrs. Robb many thanks—*A. W.*—*S. F. M.*—Stanley, Ashton & Co., the alteration in title will be borne in mind.—*C. S.*—*W. M.*—*W. E. G.*—*H. J. E.*—*A. S.*—*J. M. F.*, Philadelphia—*A. Hinderlick*—*J. Sherlock*, E. Molyneux—*G. W.*—*A. bowling green*—*W. J.*—*A. O'N.*—*R. D.*—*S. A.*—*H. W. W.*—*W. K.*—*Chas. S.*—*W. M. W.*—*A. D.*—*D. R. W.*—*E. C.*—*V. H. W. F.*—*S. A. B.*—*A. S.*—*H. T. M.*—*R. O. W. M.*—*T. E. H.*—*J. Laing & Sons.*—*J. P.*, Sydney.

PHOTOGRAPHS, SPECIMENS, &c., RECEIVED WITH THANKS.—Hans Werdemuller—*B. F. C.*, Madras—Gratiano de Azambuja, Porto Alegre.—*F. W. M.*

Continued Increase in the Circulation of the "GARDENERS' CHRONICLE."

IMPORTANT TO ADVERTISERS.—The Publisher has, the satisfaction of announcing that the circulation of the "*Gardeners' Chronicle*" has, since the reduction in the price of the paper,

TREBLED.

Advertisers are reminded that the "*Chronicle*" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.

(For Markets and Weather, see p. viii.)

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